

Description

5 3-PYRIDYLCARBOXAMIDE DERIVATIVES AS PESTICIDAL AGENTS

The invention relates to 3-pyridylcarboxamide derivatives and their use for the control of pests, in particular arthropods such as insects and acarids, and helminths (including nematodes); to compositions containing them, and to processes and

10 intermediates for their preparation.

The control of insects with 3-pyridylcarboxamide compounds has been described in many patent applications such as EP 580374, JP 10101648, JP 10182625, WO 200109104, WO 200114340, JP 6321903, JP 10195072 and JP 11180957.

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However, the level of action and/or duration of action of these prior-art compounds is not entirely satisfactory in all fields of application, in particular against certain organisms or when low concentrations are applied.

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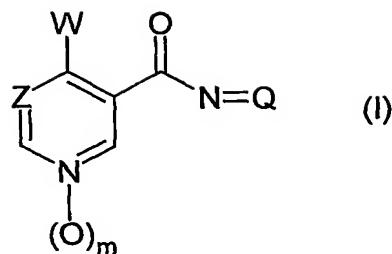
Since modern pesticides must meet a wide range of demands, for example regarding level, duration and spectrum of action, use spectrum, toxicity, combination with other active substances, combination with formulation auxiliaries or synthesis, and since the occurrence of resistances is possible, the development of such substances can never be regarded as concluded, and there is constantly a high demand for novel compounds which are advantageous over the known compounds,

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at least as far as some aspects are concerned.

The present invention provides a compound which is a 3-pyridylcarboxamide derivative of formula (I):

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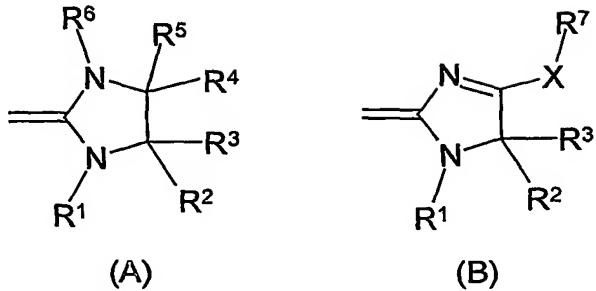


wherein:

W is (C₁-C₄)haloalkyl;

5 Z is CH or N;

=Q is a group of formula (A) or (B):



R^1 and R^6 are each independently H, (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl,

10 (C₁-C₆)alkoxy, (C₃-C₆)alkenyloxy, (C₃-C₆)alkynyoxy, (C₁-C₆)alkylamino, di-(C₁-C₆)alkylamino, NHCO(C₁-C₆)alkyl, NSO₂(C₁-C₆)alkyl, CO(C₁-C₆)alkyl or SO₂(C₁-C₆)alkyl which last twelve mentioned groups are unsubstituted or substituted by one or more R⁸ groups; or are (C₃-C₈)cycloalkyl or (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl- which cycloalkyl radicals are unsubstituted or substituted by one or more (C₁-C₆)alkyl, (C₁-C₆)haloalkyl or R⁸ groups; or are -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocycl, OH, SO₂R¹¹, NH₂, NHCOR¹¹, NH(C₃-C₈)cycloalkyl, NH(CR⁹R¹⁰)_sR¹¹, O(CR⁹R¹⁰)_tR¹¹, -(CR⁹R¹⁰)CO₂CH₂R¹¹, O(CH₂)_rheterocycl, N=C[(C₁-C₆)alkyl]₂, COR^{11a} or CO-heterocycl; or are (C₃-C₆)alkenyl substituted by R^{11a};

15 R², R³, R⁴ and R⁵ are each independently H, (C₁-C₈)alkyl, (C₂-C₆)alkenyl or (C₂-C₆)alkynyl, which last three mentioned groups are unsubstituted or substituted by one or more R⁸ groups; or are (C₃-C₈)cycloalkyl or (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl- which cycloalkyl radicals are unsubstituted or substituted by one or more (C₁-C₆)alkyl, (C₁-C₆)haloalkyl or R⁸ groups; or are -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocycl, OH, SO₂R¹¹, NH₂, NHCOR¹¹, NH(C₃-C₈)cycloalkyl, NH(CR⁹R¹⁰)_sR¹¹, O(CR⁹R¹⁰)_tR¹¹, -(CR⁹R¹⁰)CO₂CH₂R¹¹, O(CH₂)_rheterocycl, N=C[(C₁-C₆)alkyl]₂, COR^{11a} or CO-heterocycl; or are (C₃-C₆)alkenyl substituted by R^{11a};

20 R², R³, R⁴ and R⁵ are each independently H, (C₁-C₈)alkyl, (C₂-C₆)alkenyl or (C₂-C₆)alkynyl, which last three mentioned groups are unsubstituted or substituted by one or more R⁸ groups; or are (C₃-C₈)cycloalkyl or (C₃-C₈)cycloalkyl-(C₁-C₆)alkyl- which cycloalkyl radicals are unsubstituted or substituted by one or more (C₁-C₆)alkyl, (C₁-C₆)haloalkyl or R⁸ groups; or are -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocycl, OH, SO₂R¹¹, NH₂, NHCOR¹¹, NH(C₃-C₈)cycloalkyl, NH(CR⁹R¹⁰)_sR¹¹, O(CR⁹R¹⁰)_tR¹¹, -(CR⁹R¹⁰)CO₂CH₂R¹¹, O(CH₂)_rheterocycl, N=C[(C₁-C₆)alkyl]₂, COR^{11a} or CO-heterocycl; or are (C₃-C₆)alkenyl substituted by R^{11a};

C_6)alkyl, (C_1-C_6) haloalkyl or R^8 groups; or are (C_1-C_6) alkyl-SH, $-(CR^9R^{10})_pR^{11}$, $-(CR^9R^{10})_p$ heterocycl or $O(CH_2)_rR^{11}$;

or R^2 and R^3 , or R^4 and R^5 together with the respective attached carbon atom form a carbonyl or thiocarbonyl group or a (C_3-C_8) cycloalkyl ring; or an imino group which is

5 unsubstituted or substituted by (C_1-C_6) alkyl, $CO(C_1-C_6)$ alkyl or R^{11a} ;

R^7 is (C_3-C_6) alkenyl, (C_3-C_6) alkynyl, $-(CR^9R^{10})_pR^{11}$, $-(CR^9R^{10})_p$ heterocycl, $CO(C_1-C_6)$ alkyl or a (C_3-C_8) cycloalkyl ring; or (C_1-C_8) alkyl unsubstituted or substituted by one or more radicals selected from halogen and $-OC(=O)-(C_1-C_4)$ alkyl;

R^8 is halogen, (C_1-C_6) alkoxy, (C_1-C_6) haloalkoxy, $S(O)_nR^{12}$, CN , $CO_2(C_1-C_6)$ alkyl,

10 CO_2H , NO_2 , OH , amino, (C_1-C_6) alkylamino, di- (C_1-C_6) alkylamino, carbamoyl, (C_1-C_6) -alkylcarbamoyl, di- (C_1-C_6) -alkylcarbamoyl, $CH[O(C_1-C_6)$ alkyl] $_2$, (C_3-C_6) alkenyloxy, (C_3-C_6) alkynyloxy or $O(CH_2)_rR^{11}$;

R^9 and R^{10} are each independently H , (C_1-C_6) alkyl or (C_1-C_6) haloalkyl;

15 R^{11} is aryl unsubstituted or substituted by one or more radicals selected from the group consisting of (C_1-C_6) alkyl, (C_1-C_6) haloalkyl, (C_2-C_6) alkenyl, (C_2-C_6) alkynyl, (C_3-C_8) cycloalkyl, $-(CH_2)_uR^{11a}$, heterocycl, halogen, (C_1-C_6) alkoxy, (C_1-C_6) haloalkoxy, $S(O)_nR^{12}$, CN , $CO_2(C_1-C_6)$ alkyl, NO_2 , amino, (C_1-C_6) alkylamino, di- (C_1-C_6) alkylamino and $CO(C_1-C_6)$ alkyl;

R^{11a} is aryl unsubstituted or substituted by one or more radicals selected from the

20 group consisting of (C_1-C_6) alkyl, (C_1-C_6) haloalkyl, halogen, (C_1-C_6) alkoxy, (C_1-C_6) haloalkoxy, $S(O)_nR^{12}$, CN , $CO_2(C_1-C_6)$ alkyl, CO_2H , NO_2 , OH , amino, (C_1-C_6) alkylamino and di- (C_1-C_6) alkylamino;

R^{12} is (C_1-C_6) alkyl or (C_1-C_6) haloalkyl;

X is O , S , NR^{13} or NOR^{13} ;

25 R^{13} is H , (C_1-C_8) alkyl, (C_3-C_6) alkenyl, (C_3-C_6) alkynyl or (C_3-C_8) cycloalkyl which last four mentioned groups are unsubstituted or substituted by one or more R^8 groups; or is (C_3-C_8) cycloalkyl- (C_1-C_6) alkyl- which cycloalkyl is unsubstituted or substituted by one or more (C_1-C_6) alkyl, (C_1-C_6) haloalkyl or R^8 groups; or is $-(CR^9R^{10})_pR^{11}$ or $-(CR^9R^{10})_p$ heterocycl;

30 m , s and u are each independently 0 or 1;

n is 0, 1 or 2;

p is 0, 1, 2 or 3;

r is 0 or an integer from 1 to 6; and each heterocycll in the above mentioned radicals is independently a heterocyclic radical having 3 to 7 ring atoms and 1 to 4 hetero atoms selected from N, O and S, and is unsubstituted or substituted by one or more radicals selected from the group consisting of (C₁-C₆)alkyl, (C₁-C₆)haloalkyl,

5 (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, -(CH₂)_uR^{11a}, halogen, (C₁-C₆)alkoxy, (C₁-C₆)haloalkoxy, S(O)_nR¹², CN, CO₂(C₁-C₆)alkyl, NO₂, OH, amino, (C₁-C₆)alkylamino and di-(C₁-C₆)alkylamino;

or a pesticidally acceptable salt thereof.

10 These compounds possess valuable pesticidal properties.

The invention also encompasses any stereoisomer, enantiomer or geometric isomer, and mixtures thereof.

15 By the term "pesticidally acceptable salts" is meant salts the cations or anions of which are known and accepted in the art for the formation of salts for pesticidal or horticultural use. Suitable salts with bases, e.g. formed by compounds of formula (I) containing a carboxy, NH or OH group, include alkali metal (e.g. sodium and potassium), alkaline earth metal (e.g. calcium and magnesium), ammonium and

20 amine (e.g. diethanolamine, triethanolamine, octylamine, morpholine and dioctylmethylamine) salts. Suitable acid addition salts, e.g. formed by compounds of formula (I) containing an amino group, include salts with inorganic acids, for example hydrochlorides, sulphates, phosphates and nitrates and salts with organic acids for example acetic acid.

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The term pests means arthropod pests (including insects and acarids), and helminths (including nematodes).

In the present patent application, including the accompanying claims, the

30 aforementioned substituents have the following meanings:

halogen atom means fluorine, chlorine, bromine or iodine;

alkyl groups and portions thereof (unless otherwise defined) may be straight- or branched-chain; cycloalkyl groups preferably have from three to six carbon atoms in the ring and are optionally substituted by halogen or alkyl.

5 The haloalkyl and haloalkoxy groups bear one or more halogen atoms; preferred groups of this type include $-CF_3$ and $-OCF_3$. The term "halo" before the name of a radical means that this radical is partially or completely halogenated, that is to say, substituted by F, Cl, Br, or I, in any combination, preferably by F or Cl.

10 The expression " (C_1-C_6) -alkyl" is to be understood as meaning an unbranched or branched hydrocarbon radical having 1, 2, 3, 4, 5 or 6 carbon atoms, such as, for example a methyl, ethyl, propyl, isopropyl, 1-butyl, 2-butyl, 2-methylpropyl or tert-butyl radical.

15 " (C_1-C_6) -Haloalkyl" is to be understood as meaning an alkyl group mentioned under the expression " (C_1-C_6) -alkyl" in which one or more hydrogen atoms are replaced by the same number of identical or different halogen atoms, preferably by chlorine or fluorine, such as the trifluoromethyl, the 1-fluoroethyl, the 2,2,2-trifluoroethyl, the chloromethyl, fluoromethyl, the difluoromethyl or the 1,1,2,2-tetrafluoroethyl group.

20 20 " (C_1-C_6) -Alkoxy" is to be understood as meaning an alkoxy group whose hydrocarbon radical has the meaning given under the expression " (C_1-C_6) -alkyl".

25 The terms "alkenyl" and "alkynyl" with a range of carbon atoms stated as prefix denote a straight-chain or branched hydrocarbon radical having a number of carbon atoms which corresponds to this stated range and which contains at least one multiple bond which can be located in any position of the respective unsaturated radical. " (C_2-C_6) -Alkenyl" accordingly denotes, for example, the vinyl, allyl, 2-methyl-2-propenyl, 2-butenyl, pentenyl, 2-methylpentenyl or the hexenyl group. " (C_2-C_6) -Alkynyl" denotes, for example, the ethynyl, propargyl, 2-methyl-2-propynyl; 2-butynyl; 2-pentynyl or the 2-hexynyl group.

"(C₃-C₈)-Cycloalkyl" denotes monocyclic alkyl radicals, such as the cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl or cyclooctyl radical, and denotes bicyclic alkyl radicals, such as the norbornyl radical.

- 5 The expression "(C₃-C₈)-cycloalkyl-(C₁-C₆)-alkyl" is to be understood as meaning, for example the cyclopropylmethyl, cyclopentylmethyl, cyclohexylmethyl, cyclohexylethyl, cyclohexylbutyl, 1-methylcyclopropyl, 1-methylcyclopentyl, 1-methylcyclohexyl, 3-hexylcyclobutyl or the 4-tert-butylcyclohexyl radical.
- 10 "(C₁-C₆)-Alkylamino" denotes a nitrogen atom which is substituted by an alkyl radical of the above definition. "Di-(C₁-C₆)-alkylamino" denotes a nitrogen atom which is substituted by two alkyl radical of the above definition.

The expression "(C₁-C₆)-alkylcarbamoyl" denotes a carbamoyl group having one hydrocarbon radical which has the meaning given under the expression "(C₁-C₆)-alkyl"; and "di-(C₁-C₆)-alkylcarbamoyl" denotes a carbamoyl group having two hydrocarbon radicals which can be identical or different.

The expression "aryl" is to be understood as meaning a carbocyclic, i.e. constructed of carbon atoms, aromatic radical having preferably 6 to 14, in particular 6 to 12, carbon atoms, such as, for example, phenyl, naphthyl or biphenylyl, preferably phenyl.

The expression "heterocyclyl" denotes a saturated, partially saturated or aromatic ring system having 3 to 7 ring atoms and 1 to 4 heteroatoms selected from the group consisting of O, S and N, where at least one carbon atom has to be present in the ring.

Preferably "heterocyclyl" denotes a thiophene, furan, pyrrole, thiazole, oxazole, imidazole, isothiazole, isoxazole, pyrazole, 1,3,4-oxadiazole, 1,3,4-thiadiazole, 1,3,4-triazole, 1,2,4-oxadiazole, 1,2,4-thiadiazole, 1,2,4-triazole, 1,2,3-triazole, 1,2,3,4-tetrazole, benzo[b]thiophene, benzo[b]furan, indole, benzo[c]thiophene, 1,3-

benzodioxole, 1,3-benzodioxane, benzo[c]furan, isoindole, benzoxazole, benzothiazole, benzimidazole, benzisoxazole, benzisothiazole, benzopyrazole, benzothiadiazole, benzotriazole, dibenzofuran, dibenzothiophene, carbazole, pyridine, pyrazine, pyrimidine, pyridazine, 1,3,5-triazine, 1,2,4-triazine,

5 1,2,4,5-tetrazine, quinoline, isoquinoline, quinoxaline, quinazoline, cinnoline, 1,8-naphthyridine, 1,5-naphthyridine, 1,6-naphthyridine, 1,7-naphthyridine, phthalazine, pyridopyrimidine, purine, pteridine, 4H-quinolizine, morpholine, piperidine, piperazine, pyrroline, pyrrolidine, oxazoline, tetrahydrofuran, tetrahydropyran, isoxazolidine, oxazolidine, thiazoline, thiazolidine, oxirane or

10 oxetane radical.

More preferably, "heterocyclyl" denotes a pyridine, pyrimidine, 1,2,4-oxadiazole, 1,3,4-oxadiazole, pyrrole, furan, thiophene, oxazole, thiazole, imidazole, pyrazole, isoxazole, 1,2,4-triazole, 1,2,3,4-tetrazole, pyrazine, pyridazine, oxazoline, thiazoline, 15 tetrahydrofuran, tetrahydropyran, morpholine, piperidine, piperazine, pyrroline, pyrrolidine, oxazolidine, thiazolidine, oxirane, oxetane, 1,3-benzodioxole or 1,3-benzodioxane radical.

The "heterocyclyl" radical is unsubstituted or substituted by one or more radicals 20 selected from the group consisting of (C₁-C₆)alkyl, (C₁-C₆)haloalkyl, (C₂-C₆)alkenyl, (C₂-C₆)alkynyl, -(CH₂)_uR^{11a}, halogen, (C₁-C₆)alkoxy, (C₁-C₆)haloalkoxy, S(O)_nR¹², CN, CO₂(C₁-C₆)alkyl, NO₂, OH, amino, (C₁-C₆)alkylamino and di-(C₁-C₆)alkylamino.

Preferably the "heterocyclyl" radical is unsubstituted or substituted by one or more 25 radicals selected from the group consisting of halogen, CN, NO₂, (C₁-C₄)-alkyl, (C₁-C₄)-haloalkyl, (C₁-C₄)-alkoxy, (C₁-C₄)-haloalkoxy, (C₁-C₄)-alkylthio and (C₁-C₄)-haloalkylthio.

It is to be generally understood, unless otherwise stated, that the term "unsubstituted 30 or substituted by one or more groups" or "unsubstituted or substituted by one or more groups selected from" means that such groups (or preferred groups) may be the same or different.

Preferably W is CF_3 .

Preferably Z is CH.

Preferably R^1 and R^6 are each independently H, $(\text{C}_1\text{-}\text{C}_8)\text{alkyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{alkenyl}$, $\text{CO}(\text{C}_1\text{-}$

5 $\text{C}_6)\text{alkyl}$ or $\text{SO}_2(\text{C}_1\text{-}\text{C}_6)\text{alkyl}$; or are $-(\text{CR}^9\text{R}^{10})_p\text{R}^{11}$ (more preferably R^1 is $(\text{C}_1\text{-}\text{C}_8)\text{alkyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{alkenyl}$ or $-(\text{CR}^9\text{R}^{10})_p\text{R}^{11}$ and R^6 is H or $(\text{C}_1\text{-}\text{C}_8)\text{alkyl}$).

Preferably R^2 , R^3 , R^4 and R^5 are each independently H, $(\text{C}_1\text{-}\text{C}_8)\text{alkyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{alkenyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{alkynyl}$, $-(\text{CR}^9\text{R}^{10})_p\text{R}^{11}$, $-(\text{CR}^9\text{R}^{10})_p\text{heterocyclyl}$ or $\text{O}(\text{CH}_2)_p\text{R}^{11}$; or R^2 and R^3 together with the attached carbon atom form a carbonyl or thiocarbonyl group, or an

10 imino group which is unsubstituted or substituted by $(\text{C}_1\text{-}\text{C}_6)\text{alkyl}$, $\text{CO}(\text{C}_1\text{-}\text{C}_6)\text{alkyl}$ or R^{11a} ; or R^2 and R^3 , or R^4 and R^5 together with the respective attached carbon atom form a $(\text{C}_3\text{-}\text{C}_8)\text{cycloalkyl}$ ring.

Preferably R^7 is $(\text{C}_1\text{-}\text{C}_8)\text{alkyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{alkenyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{alkynyl}$, $-(\text{CR}^9\text{R}^{10})_p\text{R}^{11}$ or $-(\text{CR}^9\text{R}^{10})_p\text{heterocyclyl}$.

15 Preferably R^8 is halogen, $(\text{C}_1\text{-}\text{C}_4)\text{alkoxy}$ or OH (more preferably R^8 is halogen).

Preferably R^9 and R^{10} are each independently H, $(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$ or $(\text{C}_1\text{-}\text{C}_4)\text{haloalkyl}$.

Preferably R^{11} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of $(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$, $(\text{C}_1\text{-}\text{C}_4)\text{haloalkyl}$, $(\text{C}_2\text{-}\text{C}_4)\text{alkenyl}$, $(\text{C}_2\text{-}\text{C}_4)\text{alkynyl}$, $(\text{C}_3\text{-}\text{C}_6)\text{cycloalkyl}$, $-(\text{CH}_2)_u\text{R}^{11a}$, heterocyclyl, halogen, $(\text{C}_1\text{-}\text{C}_4)\text{alkoxy}$, $(\text{C}_1\text{-}\text{C}_4)\text{haloalkoxy}$, $\text{S}(\text{O})_n\text{R}^{12}$, CN, $\text{CO}_2(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$, NO_2 , amino, $(\text{C}_1\text{-}\text{C}_4)\text{alkylamino}$ and di- $(\text{C}_1\text{-}\text{C}_4)\text{alkylamino}$; (more preferably R^{11} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of $(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$, halogen, $(\text{C}_1\text{-}\text{C}_4)\text{alkoxy}$, NO_2 and amino).

Preferably R^{11a} is phenyl unsubstituted or substituted by one or more radicals

25 selected from the group consisting of $(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$, $(\text{C}_1\text{-}\text{C}_4)\text{haloalkyl}$, halogen, $(\text{C}_1\text{-}\text{C}_4)\text{alkoxy}$, $(\text{C}_1\text{-}\text{C}_4)\text{haloalkoxy}$, $\text{S}(\text{O})_n\text{R}^{12}$, CN, $\text{CO}_2(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$, CO_2H , NO_2 , OH, amino, $(\text{C}_1\text{-}\text{C}_4)\text{alkylamino}$ and di- $(\text{C}_1\text{-}\text{C}_4)\text{alkylamino}$.

Preferably R^{12} is $(\text{C}_1\text{-}\text{C}_4)\text{alkyl}$ or $(\text{C}_1\text{-}\text{C}_4)\text{haloalkyl}$.

Preferably X is O or S.

30 Preferably m is 0.

Preferably p, r, s and u are each independently 0 or 1.

Preferably each heterocyclyl in the above mentioned radicals is independently a heterocyclic radical having 3 to 7 ring atoms and 1 to 4 hetero atoms selected from N, O and S.

5 A preferred class of compounds are those wherein:

W is CF_3 ;

Z is CH ;

R¹ and R⁶ are each independently H, (C₁-C₈)alkyl, (C₃-C₆)alkenyl, CO(C₁-C₆)alkyl or SO₂(C₁-C₆)alkyl; or are -(CR⁹R¹⁰)_pR¹¹ (more preferably R¹ is (C₁-C₈)alkyl, (C₃-C₆)alkenyl or -(CR⁹R¹⁰)_pR¹¹ and R⁶ is H or (C₁-C₈)alkyl);

10 R², R³, R⁴ and R⁵ are each independently H, (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl, -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocyclyl or O(CH₂)_rR¹¹; or R² and R³ together with the attached carbon atom form a carbonyl or thiocarbonyl group, or an imino group which is unsubstituted or substituted by (C₁-C₆)alkyl, CO(C₁-C₆)alkyl or

15 R^{11a}; or R² and R³, or R⁴ and R⁵ together with the respective attached carbon atom form a (C₃-C₈)cycloalkyl ring;

R⁷ is (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl, -(CR⁹R¹⁰)_pR¹¹ or -(CR⁹R¹⁰)_pheterocyclyl;

R⁸ is (C₁-C₄)alkoxy or OH;

20 R⁹ and R¹⁰ are each independently H, (C₁-C₄)alkyl or (C₁-C₄)haloalkyl;

R¹¹ is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of (C₁-C₄)alkyl, (C₁-C₄)haloalkyl, (C₂-C₄)alkenyl, (C₂-C₄)alkynyl, (C₃-C₆)cycloalkyl, -(CH₂)_uR^{11a}, heterocyclyl, halogen, (C₁-C₄)alkoxy, (C₁-C₄)haloalkoxy, S(O)_nR¹², CN, CO₂(C₁-C₄)alkyl, NO₂, amino, (C₁-C₄)alkylamino and di-(C₁-C₄)alkylamino; (more preferably R¹¹ is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of (C₁-C₄)alkyl, halogen, (C₁-C₄)alkoxy, NO₂ and amino);

R^{11a} is phenyl unsubstituted or substituted by one or more radicals selected from the group consisting of (C₁-C₄)alkyl, (C₁-C₄)haloalkyl, halogen, (C₁-C₄)alkoxy, (C₁-C₄)haloalkoxy, S(O)_nR¹², CN, CO₂(C₁-C₄)alkyl, CO₂H, NO₂, OH, amino, (C₁-C₄)alkylamino and di-(C₁-C₄)alkylamino;

R¹² is (C₁-C₄)alkyl or (C₁-C₄)haloalkyl;

X is O or S;

m is 0;

p, r, s and u are each independently 0 or 1; and

each heterocyclyl in the above mentioned radicals is independently a heterocyclic

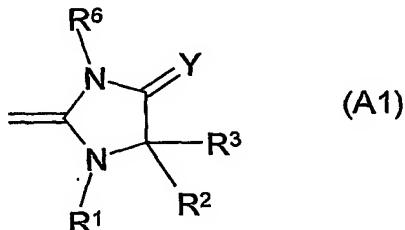
5 radical having 3 to 7 ring atoms and 1 to 4 hetero atoms selected from N, O and S.

A particularly preferred embodiment of the invention comprises compounds of formula (I) wherein:

W is CF₃;

10 Z is CH;

=Q is a group of formula (A1):



R¹ and R⁶ are each independently H, (C₁-C₈)alkyl, (C₃-C₆)alkenyl, CO(C₁-C₆)alkyl or SO₂(C₁-C₆)alkyl; or are -(CR⁹R¹⁰)_pR¹¹ (more preferably R¹ is (C₁-C₈)alkyl, (C₃-

15 C₆)alkenyl or -(CR⁹R¹⁰)_pR¹¹, and R⁶ is H or (C₁-C₈)alkyl);

R² and R³ are each independently H, (C₁-C₈)alkyl, (C₃-C₆)alkenyl, (C₃-C₆)alkynyl, -(CR⁹R¹⁰)_pR¹¹, -(CR⁹R¹⁰)_pheterocyclyl or O(CH₂)_rR¹¹;

Y is O or S; and

heterocyclyl is a heterocyclic radical having 3 to 7 ring atoms and 1 to 4 hetero

20 atoms selected from N, O and S.

A further preferred class of compounds are those wherein:

W is CF₃;

Z is CH;

25 =Q is a group of formula (A);

R¹ is H, (C₁-C₄)alkyl, (C₃-C₄)alkenyl or -(CH₂)_pphenyl;

R² is H or -(CH₂)_pphenyl; or (C₁-C₄)alkyl unsubstituted or substituted by OH,

carbamoyl, S(O)_nR¹² or SH;

R^3 is H or (C_1-C_4) alkyl;

or R^2 and R^3 together with the attached carbon atom form a (C_3-C_6) cycloalkyl ring;

R^4 and R^5 together with the attached carbon atom form a thiocarbonyl group;

R^6 is H;

5 R^{12} is (C_1-C_4) alkyl;

p is 0 or 1; and

m is 0.

A further preferred class of compounds are those wherein:

10 W is CF_3 ;

Z is CH ;

$=Q$ is a group of formula (A);

R^1 is H, (C_1-C_4) alkyl, (C_3-C_4) alkenyl or $-(CH_2)_p$ phenyl;

R^2 is H or $-(CH_2)_p$ phenyl; or (C_1-C_4) alkyl unsubstituted or substituted by OH,

15 carbamoyl, $S(O)_nR^{12}$ or SH;

R^3 is H or (C_1-C_4) alkyl;

or R^2 and R^3 together with the attached carbon atom form a (C_3-C_6) cycloalkyl ring;

R^4 and R^5 together with the attached carbon atom form a carbonyl group;

R^6 is H or (C_3-C_4) alkenyl; or (C_1-C_4) alkyl unsubstituted or substituted by $CO_2(C_1-C_4)$ alkyl or CO_2CH_2 phenyl; or $-CH_2R^{11}$ in which R^{11} is phenyl unsubstituted or

substituted by one or more halogen groups; or phenyl unsubstituted or substituted by one or more radicals selected from (C_1-C_4) alkyl and (C_1-C_4) haloalkyl;

R^{12} is (C_1-C_4) alkyl;

p is 0 or 1; and

25 m is 0.

A further preferred class of compounds are those wherein:

W is CF_3 ;

Z is CH ;

30 $=Q$ is a group of formula (A);

R^1 is H, (C_1-C_4) alkyl, (C_3-C_4) alkenyl or $-(CH_2)_p$ phenyl;

R^2 is H or $-(CH_2)_p$ phenyl; or (C_1-C_4) alkyl unsubstituted or substituted by OH, carbamoyl, $S(O)_nR^{12}$ or SH;
 R^3 is H or (C_1-C_4) alkyl;
or R^2 and R^3 together with the attached carbon atom form a (C_3-C_6) cycloalkyl ring;

5 R^4 and R^5 together with the attached carbon atom form an imino group;
 R^6 is H or (C_3-C_4) alkenyl; or (C_1-C_4) alkyl unsubstituted or substituted by $CO_2(C_1-C_4)$ alkyl or CO_2CH_2 phenyl; or $-CH_2R^{11}$ in which R^{11} is phenyl unsubstituted or substituted by one or more halogen atoms; or phenyl unsubstituted or substituted by one or more radicals selected from (C_1-C_4) alkyl and (C_1-C_4) haloalkyl;

10 R^{12} is (C_1-C_4) alkyl;
 p is 0 or 1; and
 m is 0.

A further preferred class of compounds are those wherein:

15 W is CF_3 ;
 Z is CH;
 $=Q$ is a group of formula (A);
 R^1 is H, (C_1-C_4) alkyl, (C_3-C_4) alkenyl or $-CH_2$ phenyl; or phenyl unsubstituted or substituted by one or more radicals selected from (C_1-C_4) alkyl and (C_1-C_4) haloalkyl;

20 or $-CH_2$ heterocyclyl wherein heterocyclyl is a heterocyclic radical having 5 or 6 ring atoms and 1 or 2 hetero atoms selected from N and S, and is unsubstituted or substituted by one or more radicals selected from the group consisting of (C_1-C_6) alkyl, (C_1-C_6) haloalkyl and halogen;
 R^2 , R^3 , R^4 and R^5 are each H;

25 R^6 is H, (C_1-C_4) alkyl, (C_3-C_4) alkenyl or $-(CH_2)_p$ phenyl;
 p is 0 or 1; and
 m is 0.

A further preferred class of compounds are those wherein:

30 W is CF_3 ;
 Z is CH;
 $=Q$ is a group of formula (B);

R¹ is H, (C₁-C₄)alkyl, (C₃-C₄)alkenyl, -(CH₂)_pphenyl, CO(C₁-C₄)alkyl or COphenyl;

R² is H or -(CH₂)_pphenyl; or (C₁-C₄)alkyl unsubstituted or substituted by OH, carbamoyl, S(O)_nR¹² or SH;

R³ is H or (C₁-C₄)alkyl;

5 or R² and R³ together with the attached carbon atom form a (C₃-C₆)cycloalkyl ring;

X is S;

R⁷ is (C₃-C₄)alkenyl or -CH₂phenyl; or (C₁-C₄)alkyl unsubstituted or substituted by -OC(=O)-(C₁-C₄)alkyl;

R¹² is (C₁-C₄)alkyl;

10 p is 0 or 1; and

m is 0.

A further preferred class of compounds are those wherein:

W is CF₃;

15 Z is CH;

=Q is a group of formula (B);

R¹ is H, (C₁-C₄)alkyl, (C₃-C₄)alkenyl, -(CH₂)_pphenyl, CO(C₁-C₄)alkyl or COphenyl;

R² is H or -(CH₂)_pphenyl; or (C₁-C₄)alkyl unsubstituted or substituted by OH, carbamoyl, S(O)_nR¹² or SH;

20 R³ is H or (C₁-C₄)alkyl;

or R² and R³ together with the attached carbon atom form a (C₃-C₆)cycloalkyl ring;

X is O;

R⁷ is (C₃-C₄)alkenyl or -CH₂phenyl; or (C₁-C₄)alkyl unsubstituted or substituted by -OC(=O)-(C₁-C₄)alkyl;

25 R¹² is (C₁-C₄)alkyl;

p is 0 or 1; and

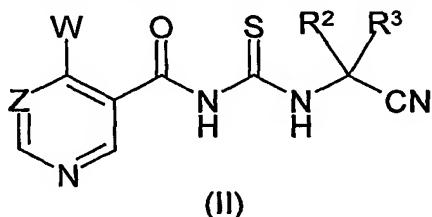
m is 0.

The compounds of general formula (I) can be prepared by the application or

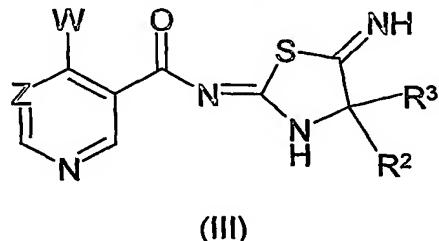
30 adaptation of known methods (i.e. methods heretofore used or described in the chemical literature).

In the following description of processes when symbols appearing in formulae are not specifically defined, it is understood that they are "as defined above" in accordance with the first definition of each symbol in the specification.

5 According to a feature of the invention compounds of formula (I) wherein W and Z are as defined above, =Q is a group of formula (A), R² and R³ are as defined above excluding where together with the attached carbon atom they form a carbonyl, thiocarbonyl or imino group, R⁴ and R⁵ together with the attached carbon atom form a thiocarbonyl group, R¹ and R⁶ are each a hydrogen atom and m is zero, may be
 10 prepared by the cyclisation-rearrangement reaction of a compound of formula (II):



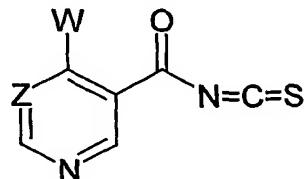
wherein W and Z are as defined above, R² and R³ are as defined above excluding where together with the attached carbon atom they form a carbonyl, thiocarbonyl or imino group. The reaction is generally performed in a solvent such as dioxan,
 15 tetrahydrofuran or N,N-dimethylformamide, at a temperature of from 0° to 100°C (preferably 0° to 50°C), and preferably in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride. When a base is not present the
 20 temperature range is preferably 50°C to 100°C. The reaction proceeds via cyclisation to an intermediate of formula (III), which is generally not isolated:



wherein W, Z, R² and R³ are as defined above, which rearranges to the compound of
 25 formula (I).

According to a further feature of the invention compounds of formula (I) wherein W and Z are as defined above, =Q is a group of formula (A), R² and R³ are as defined above excluding where they form a carbonyl, thiocarbonyl or imino group, R⁴ and R⁵ together with the attached carbon atom form a thiocarbonyl group, R¹ and R⁶ are

5 each a hydrogen atom and m is zero, may also be prepared by the reaction of a compound of formula (IV):



(IV)

wherein W and Z are as defined above, with a compound of formula (V):

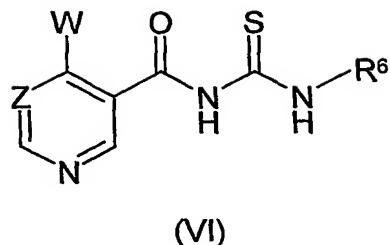
10 $\text{H}_2\text{NCR}^2(\text{R}^3)\text{CN}$ (V)

wherein R² and R³ are as defined above excluding where together with the attached carbon atom they form a carbonyl, thiocarbonyl or imino group, to give the corresponding compound of formula (II), which then undergoes the above described cyclisation-rearrangement reaction.

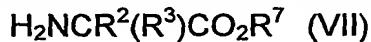
15 The reaction is generally performed in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride, in a solvent such as dioxan, tetrahydrofuran or N,N-dimethylformamide, at a temperature of from 0° to 100°C
 20 (preferably 0° to 50°C).

According to a further feature of the invention compounds of formula (I) wherein =Q is a group of formula (A), R¹ is a hydrogen atom, R² and R³ are as defined above excluding where together with the attached carbon atom they form a carbonyl, thiocarbonyl or imino group, R⁴ and R⁵ together with the attached carbon atom form a carbonyl group, W, Z and R⁶ are as defined above and m is zero, may be prepared by the reaction of a compound of formula (VI):

16



wherein W, Z and R⁶ are as defined above, with a compound of formula (VII):

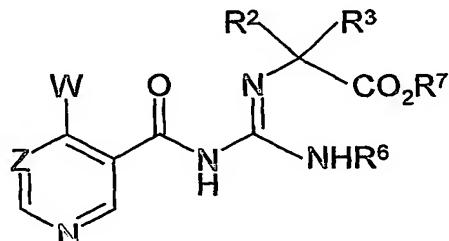


5 wherein R² and R³ are as defined above excluding where together with the attached carbon atom they form a carbonyl, thiocarbonyl or imino group, and R⁷ is a leaving group, generally alkyl such as methyl or ethyl, or benzyl.

The reaction is generally performed in the presence of a coupling agent such as a carbodiimide for example N,N-dicyclohexylcarbodiimide, or 1-ethyl-3-(3-

10 dimethylaminopropyl)carbodiimide or an acid salt thereof such as the hydrochloride salt, in a solvent such as dioxan, tetrahydrofuran or N,N-dimethylformamide, at a temperature of from 20° to 120°C, and optionally in the presence of a catalyst such as 4-dimethylaminopyridine.

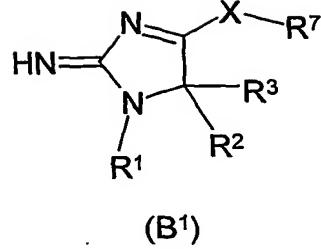
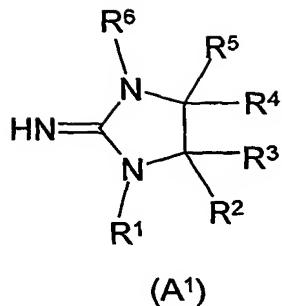
The reaction proceeds via an intermediate compound of formula (VIII) which may be 15 isolated if required:



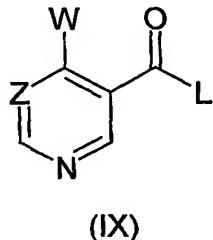
(VIII)

wherein the various symbols are as defined above, followed by cyclisation.

20 According to a further feature of the invention compounds of formula (I) wherein =Q is a group of formula (A) or (B), m is zero and the other symbols are as defined above, may be prepared by the acylation of the corresponding compound of formula (A¹) or (B¹):

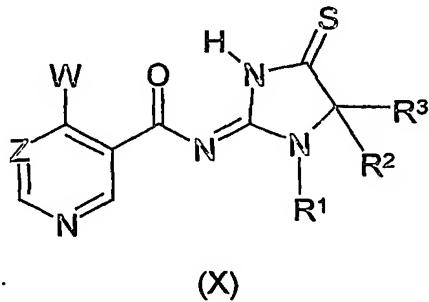


wherein the various symbols are as defined above, with a compound of formula (IX):



5 wherein W and Z are as defined above, L is a leaving group, generally halogen and preferably chlorine. The reaction is generally performed in a solvent such as dichloromethane, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

10 According to a further feature of the invention compounds of formula (I) wherein =Q is a group of formula (B), W, Z, R¹ and R⁷ are as defined above, X is S, m is zero, and R² and R³ are as defined above excluding where together with the attached carbon atom they form a carbonyl or thiocarbonyl group, or an imino group which is unsubstituted or substituted by (C₁-C₆)alkyl, CO(C₁-C₆)alkyl or R^{11a}, may be prepared by the reaction of a compound of formula (I) which is of formula (X):



15

wherein W, Z, R¹, R² and R³ are as defined above, with a compound of formula (XI):

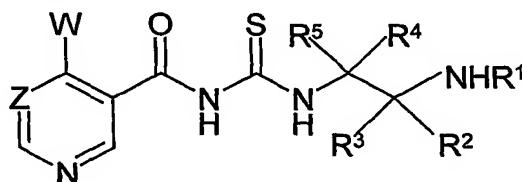


20 wherein R⁷ is as defined above and L is a leaving group generally halogen and preferably chlorine or bromine. The reaction is generally performed in the presence

of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride, in a solvent such as dioxan, tetrahydrofuran or N,N-dimethylformamide, at a

5 temperature of from 0° to 100°C (preferably 0° to 50°C).

According to a further feature of the invention compounds of formula (I) wherein =Q is a group of formula (A), W, Z, R¹, R², R³, R⁴ and R⁵ are as defined above, R⁶ is hydrogen and m is zero, may be prepared by cyclising a compound of formula (XII):



10

(XII)

wherein W, Z, R¹, R², R³, R⁴ and R⁵ are as defined above.

The reaction is generally performed in the presence of an organic base such as a tertiary amine for example triethylamine, or pyridine, or an inorganic base such as an 15 alkali metal carbonate, for example potassium carbonate, or an alkali metal alkoxide such as sodium ethoxide, or sodium hydride, and a carbodiimide for example N, N-dicyclohexylcarbodiimide or 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide, in a solvent such as dioxan, tetrahydrofuran or N,N-dimethylformamide, at a temperature of from 0° to 100°C (preferably 0° to 50°C).

20

According to a further feature of the invention compounds of formula (I) wherein =Q is a group of formula (A), W, Z, R¹, R² and R³ are as defined above, R⁴ and R⁵ together with the attached carbon atom form a carbonyl group, R⁶ is hydrogen, and m is zero, may be prepared by the oxidation and hydrolysis reaction of a compound 25 of formula (I) wherein Q is a group of formula (B), X is S, and W, Z, R¹, R², R³ and R⁷ are as defined above, and m is zero. The reaction is generally performed in the presence of an oxidising agent such as hydrogen peroxide in a solvent such as acetic acid, or a peracid such as 3-chloroperbenzoic acid in a solvent such as

dichloromethane or 1,2-dichloroethane, at a temperature of from 0°C to the reflux temperature of the solvent.

According to a further feature of the invention compounds of formula (I) wherein =Q

5 is a group of formula (B), W, Z, R², R³ and R⁷ are as defined above, R¹ is CO(C₁-C₆)alkyl which is unsubstituted or substituted by one or more R⁸ groups, or is COR^{11a} or CO-heterocyclyl, and m is zero, may be prepared by the acylation of the corresponding compound of formula (I) wherein R¹ is hydrogen. The reaction is generally performed using an acylating agent of formula (XIII):

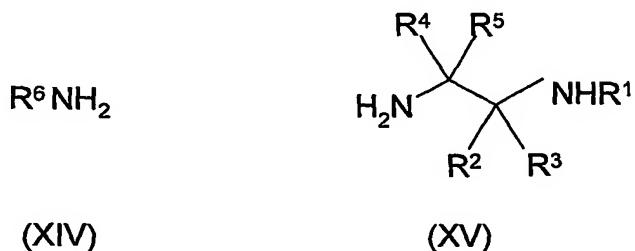


wherein L is a leaving group generally halogen, preferably chlorine, in a solvent such as dichloromethane or 1,2-dichloroethane, at a temperature of from 0°C to the reflux temperature of the solvent.

15 According to a further feature of the invention compounds of formula (I) wherein =Q is a group of formula (A), W, Z, R², R³, R⁴, R⁵ and R⁶ are as defined above, R¹ is CO(C₁-C₆)alkyl which is unsubstituted or substituted by one or more R⁸ groups, or is COR^{11a} or CO-heterocyclyl, and m is zero, may be prepared by the acylation of the corresponding compound of formula (I) wherein R¹ is hydrogen. The reaction is generally performed using an acylating agent of formula (XIII) as defined above, in a solvent such as dichloromethane or 1,2-dichloroethane, at a temperature of from 0°C to the reflux temperature of the solvent.

25 According to a further feature of the invention compounds of formula (I) wherein Q is as defined above, and m is 1 may be prepared by oxidising a corresponding compound in which m is 0. The oxidation is generally performed using hydrogen peroxide in a solvent such as acetic acid, or a peracid such as 3-chloroperbenzoic acid in a solvent such as dichloromethane or 1,2-dichloroethane, at a temperature of from 0°C to the reflux temperature of the solvent.

Intermediates of formula (II), (VI) or (XII) may be prepared by the reaction of a compound of formula (IV) with a corresponding compound of formula (V), (XIV) or (XV) respectively:



5 wherein R^1 , R^2 , R^3 , R^4 , R^5 and R^6 are as defined above. The reaction is generally performed in an inert solvent such as dichloroethane or tetrahydrofuran at a temperature of from 0° to 60°C.

10 Intermediates of formula (IX) wherein L is chlorine, may be prepared according to known procedures, for example by the reaction of the corresponding carboxylic acid wherein L is replaced by OH, with a suitable halogenating agent, preferably oxalyl chloride, in a solvent such as dichloroethane, optionally in the presence of N,N-dimethylformamide, at a temperature of from 0° to 60°C.

15 Intermediates of formula (IV) may be prepared according to known procedures, for example by the reaction of a compound of formula (IX) as defined above, with an alkali metal thiocyanate or ammonium thiocyanate or tetraalkylammonium thiocyanate for example tetrabutylammonium thiocyanate, in the presence of a base such as an alkali metal carbonate for example potassium carbonate, at a

20 temperature of from 0° to 60°C.

Collections of compounds of the formula (I) which can be synthesized by the above mentioned process may also be prepared in a parallel manner, and this may be effected manually or in a semiautomated or fully automated manner. In this case, it is possible, for example, to automate the procedure of the reaction, work-up or purification of the products or of the intermediates. In total, this is to be understood as meaning a procedure as is described, for example, by S.H. DeWitt in "Annual

Reports in Combinatorial Chemistry and Molecular Diversity: Automated Synthesis",
Volume 1, Verlag Escom 1997, pages 69 to 77.

A series of commercially available apparatuses as are offered by, for example, Stem

5 Corporation, Woodrolfe Road, Tollesbury, Essex, CM9 8SE, England or H+P
Labortechnik GmbH, Bruckmannring 28, 85764 Oberschleißheim, Germany or
Radleys, Shirehill, Saffron Walden, Essex, England, may be used for the parallel
procedure of the reaction and work-up. For the parallel purification of compounds of
the formula (I), or of intermediates obtained during the preparation, use may be
10 made, *inter alia*, of chromatography apparatuses, for example those by ISCO, Inc.,
4700 Superior Street, Lincoln, NE 68504, USA.

The apparatuses mentioned lead to a modular procedure in which the individual
process steps are automated, but manual operations must be performed between

15 the process steps. This can be prevented by employing semi-integrated or fully
integrated automation systems where the automation modules in question are
operated by, for example, robots. Such automation systems can be obtained, for
example, from Zymark Corporation, Zymark Center, Hopkinton, MA 01748, USA.

20 In addition to what has been described here, compounds of the formula (I) may be
prepared in part or fully by solid-phase-supported methods. For this purpose,
individual intermediate steps or all intermediate steps of the synthesis or of a
synthesis adapted to suit the procedure in question are bound to a synthetic resin.
Solid-phase-supported synthesis methods are described extensively in the specialist
25 literature, for example Barry A. Bunin in "The Combinatorial Index", Academic Press,
1998.

The use of solid-phase-supported synthesis methods permits a series of protocols
which are known from the literature and which, in turn, can be performed manually or
in an automated manner. For example, the "tea-bag method" (Houghten, US

30 4,631,211; Houghten et al., Proc. Natl. Acad. Sci, 1985, 82, 5131-5135), in which
products by IRORI, 11149 North Torrey Pines Road, La Jolla, CA 92037, USA, are
employed, may be semiautomated. The automation of solid-phase-supported parallel

syntheses is performed successfully, for example, by apparatuses by Argonaut Technologies, Inc., 887 Industrial Road, San Carlos, CA 94070, USA or MultiSynTech GmbH, Wullener Feld 4, 58454 Witten, Germany.

- 5 The preparation of the processes described herein yields compounds of the formula (I) in the form of substance collections which are termed libraries. The present invention also provides libraries which comprise at least two compounds of the formula (I).
- 10 Compounds of formula (V), (VII), (XI), (XIII), (XIV), (XV), (A¹) and (B¹) are known or may be prepared by known methods.

Certain compounds of formula (XII) are novel and as such form a further feature of the invention.

- 15 The following non-limiting Examples illustrate the preparation of the compounds of formula (I).

Chemical Examples

- 20 NMR spectra were run in deuteriochloroform unless stated otherwise.
In the Examples which follow, quantities (also percentages) are weight-based, unless stated otherwise.
- 25 Example 1
1-(1-Cyano-1-methyl)ethyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (0.05g) in methanol was heated at reflux for 1 hour. Ethyl acetate and water were added and the organic phase dried (magnesium sulfate) and evaporated to give N-[(2Z)-4,4-dimethyl-5-thioxo-2-imidazolinylidene]-4-(trifluoromethyl)nicotinamide (0.05g, 30 Compound A-86).

Example 2

Oxalyl chloride (6.4 ml, 2M) was added to a suspension of 4-trifluoromethylnicotinic acid (2g) and a catalytic amount of N,N-dimethylformamide in dichloromethane, and stirred at 20°C for 1 hour. After evaporation, the residue was dissolved in acetone and potassium thiocyanate (2g) added with ice bath cooling to give 4-trifluoromethyl-3-pyridylcarbonyl isothiocyanate, then 2-amino-2-methylpropanenitrile (1.35g) and potassium carbonate (1g) were added and the mixture heated at reflux for 1 hour. Ethyl acetate was added and the mixture washed with water, dried (magnesium sulfate), evaporated and the residue purified by silica-gel chromatography, eluting with n-hexane/ethyl acetate (3/1), to give N-[(2Z)-4, 4-dimethyl-5-thioxo-2-imidazolinylidene]-4-(trifluoromethyl)nicotinamide (1.4g, Compound A-86).

Example 3

Sodium hydride (0.09g, 60% dispersion in mineral oil) was added to a solution of N-[(2Z)-4,4-dimethyl-5-thioxo-2-imidazolinylidene]-4-(trifluoromethyl)nicotinamide (0.50g) in tetrahydrofuran at 20°C, and stirred for 0.5 hour. Iodomethane (0.20 ml) was added to the mixture and heated at reflux for 1 hour. Ethyl acetate and water were added, the organic phase dried (magnesium sulfate) and evaporated to give N-[(2Z)-5,5-dimethyl-4-methylthio-1,5-dihydro-2-H-imidazol-2-ylidene]-4-(trifluoromethyl)nicotinamide (0.50g, Compound E-129).

Example 4

Acetyl chloride was added to a mixture of N-[(2Z)-5,5-dimethyl-4-methylthio-1,5-dihydro-2-H-imidazol-2-ylidene]-4-(trifluoromethyl)nicotinamide (0.20g) and triethylamine (0.13ml) in dichloromethane, and stirred for 1 hour. Ethyl acetate and water were added, the organic phase dried (magnesium sulfate) and evaporated to give N-[(2Z)-1-acetyl-5,5-dimethyl-4-methylthio-1,5-dihydro-2H-imidazol-2-ylidene]-4-(trifluoromethyl)nicotinamide (0.19g, Compound E-135).

Example 5

3-Chloroperoxybenzoic acid (0.1g) was added to a solution of N-[(2Z)-5-ethyl-5-methyl-4-methylthio-1,5-dihydro-2H-imidazol-2-ylidene]-4-(trifluoromethyl)nicotinamide (0.1g) in dichloromethane, and stirred at 20°C for 1 hour.

5 The mixture was washed in turn with water, hydrochloric acid 1(M), saturated sodium bicarbonate and brine, dried (magnesium sulfate), evaporated and the residue purified by silica-gel chromatography, eluting with n-hexane/ethyl acetate (3/1), to give N-[(2Z)-4-ethyl-4-methyl-5-oxo-2-imidazolidinylidene]-4-(trifluoromethyl)nicotinamide (0.03g, Compound B-91).

10

Example 6

A mixture of 1-(4-chlorobenzyl)-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (0.40g), 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide hydrochloride (0.25g), benzyl 2-methylalaninate (0.25g) and a catalytic amount of 4-dimethylaminopyridine in

15 tetrahydrofuran was heated at reflux for 1 hour. Ethyl acetate and water were added, the organic phase dried (magnesium sulfate), evaporated and the residue purified by silica-gel chromatography, eluting with n-hexane/ethyl acetate (5/1) to give N-[(2Z)-1-(4-chlorobenzyl)-4,4-dimethyl-5-oxo-2-imidazolidinylidene]-4-(trifluoromethyl)nicotinamide (0.36g, Compound B-529).

20

Preparation of Intermediate Used in the above Examples

Oxalyl chloride (8 ml, 2M) was added to a suspension 4-trifluoromethylnicotinic acid (5g) and a catalytic amount of N, N-dimethylformamide in dichloromethane, and stirred at 20°C for 1 hour. After evaporation, the residue was dissolved in acetone and potassium thiocyanate (5g) added with ice bath cooling to give 4-trifluoromethyl-3-pyridylcarbonyl isothiocyanate. A solution of methylamine in Methanol (40%, 5ml) was then added and the mixture heated at reflux for 1 hour. Ethyl acetate was added and the mixture washed with water, dried (magnesium sulfate), evaporated and the residue recrystallized (ethanol) to give 1-methyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea (3.2g); NMR 3.29(3H, d), 7.67(1H, d), 8.89(1H, s), 8.97 (1H, d), 10.30(1H, brs).

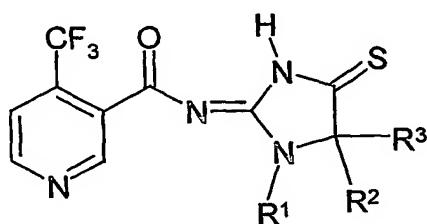
By proceeding in a similar manner the following intermediate was also prepared:
 1-(1-cyano-1-methyl)ethyl-3-(4-trifluoromethyl-3-pyridylcarbonyl)thiourea, NMR
 1.95(6H, s), 7.80(1H, d), 8.93(1H, s), 9.00 (1H, d), 10.46(1H, brs).

5 The following preferred compounds shown in Tables 1 to 6 also form part of the present invention, and were or may be prepared in accordance with, or analogously to, the above-mentioned Examples 1 to 6 or the above-described general methods. In the Tables Ph means phenyl and Me means methyl.

10 Compound numbers are given for reference purposes only.

Table I

Compounds of formula (Ia):



(Ia)

15

Compound	R ¹	R ²	R ³
A-1	H	H	H
A-2	CH ₃	H	H
A-3	CH ₂ CH=CH ₂	H	H
A-4	CH ₂ Ph	H	H
A-5	Ph	H	H
A-6	H	CH ₃	H
A-7	CH ₃	CH ₃	H
A-8	CH ₂ CH=CH ₂	CH ₃	H
A-9	CH ₂ Ph	CH ₃	H
A-10	Ph	CH ₃	H
A-11	H	CH ₃ CH ₂	H
A-12	CH ₃	CH ₃ CH ₂	H
A-13	CH ₂ CH=CH ₂	CH ₃ CH ₂	H
A-14	CH ₂ Ph	CH ₃ CH ₂	H
A-15	Ph	CH ₃ CH ₂	H
A-16	H	n-C ₃ H ₇	H

Compound	R ¹	R ²	R ³
A-17	CH ₃	n-C ₃ H ₇	H
A-18	CH ₂ CH=CH ₂	n-C ₃ H ₇	H
A-19	CH ₂ Ph	n-C ₃ H ₇	H
A-20	Ph	n-C ₃ H ₇	H
A-21	H	i-C ₃ H ₇	H
A-22	CH ₃	i-C ₃ H ₇	H
A-23	CH ₂ CH=CH ₂	i-C ₃ H ₇	H
A-24	CH ₂ Ph	i-C ₃ H ₇	H
A-25	Ph	i-C ₃ H ₇	H
A-26	H	n-C ₄ H ₉	H
A-27	CH ₃	n-C ₄ H ₉	H
A-28	CH ₂ CH=CH ₂	n-C ₄ H ₉	H
A-29	CH ₂ Ph	n-C ₄ H ₉	H
A-30	Ph	n-C ₄ H ₉	H
A-31	H	i-C ₄ H ₉	H
A-32	CH ₃	i-C ₄ H ₉	H
A-33	CH ₂ CH=CH ₂	i-C ₄ H ₉	H
A-34	CH ₂ Ph	i-C ₄ H ₉	H
A-35	Ph	i-C ₄ H ₉	H
A-36	H	s-C ₄ H ₉	H
A-37	CH ₃	s-C ₄ H ₉	H
A-38	CH ₂ CH=CH ₂	s-C ₄ H ₉	H
A-39	CH ₂ Ph	s-C ₄ H ₉	H
A-40	Ph	s-C ₄ H ₉	H
A-41	H	t-C ₄ H ₉	H
A-42	CH ₃	t-C ₄ H ₉	H
A-43	CH ₂ CH=CH ₂	t-C ₄ H ₉	H
A-44	CH ₂ Ph	t-C ₄ H ₉	H
A-45	Ph	t-C ₄ H ₉	H
A-46	H	CH ₂ Ph	H
A-47	CH ₃	CH ₂ Ph	H
A-48	CH ₂ CH=CH ₂	CH ₂ Ph	H
A-49	CH ₂ Ph	CH ₂ Ph	H
A-50	Ph	CH ₂ Ph	H
A-51	H	Ph	H
A-52	CH ₃	Ph	H
A-53	CH ₂ CH=CH ₂	Ph	H
A-54	CH ₂ Ph	Ph	H
A-55	Ph	Ph	H
A-56	H	CH ₂ OH	H
A-57	CH ₃	CH ₂ OH	H
A-58	CH ₂ CH=CH ₂	CH ₂ OH	H
A-59	CH ₂ Ph	CH ₂ OH	H

Compound	R ¹	R ²	R ³
A-60	Ph	CH ₂ OH	H
A-61	H	CH(OH)CH ₃	H
A-62	CH ₃	CH(OH)CH ₃	H
A-63	CH ₂ CH=CH ₂	CH(OH)CH ₃	H
A-64	CH ₂ Ph	CH(OH)CH ₃	H
A-65	Ph	CH(OH)CH ₃	H
A-66	H	CH ₂ SH	H
A-67	CH ₃	CH ₂ SH	H
A-68	CH ₂ CH=CH ₂	CH ₂ SH	H
A-69	CH ₂ Ph	CH ₂ SH	H
A-70	Ph	CH ₂ SH	H
A-71	H	CH ₂ SCH ₂ CH ₃	H
A-72	CH ₃	CH ₂ SCH ₂ CH ₃	H
A-73	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H
A-74	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H
A-75	Ph	CH ₂ SCH ₂ CH ₃	H
A-76	H	CH ₂ CONH ₂	H
A-77	CH ₃	CH ₂ CONH ₂	H
A-78	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H
A-79	CH ₂ Ph	CH ₂ CONH ₂	H
A-80	Ph	CH ₂ CONH ₂	H
A-81	H	CH ₂ CH ₂ CONH ₂	H
A-82	CH ₃	CH ₂ CH ₂ CONH ₂	H
A-83	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	H
A-84	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	H
A-85	Ph	CH ₂ CH ₂ CONH ₂	H
A-86	H	CH ₃	CH ₃
A-87	CH ₃	CH ₃	CH ₃
A-88	CH ₂ CH=CH ₂	CH ₃	CH ₃
A-89	CH ₂ Ph	CH ₃	CH ₃
A-90	Ph	CH ₃	CH ₃
A-91	H	CH ₃ CH ₂	CH ₃
A-92	CH ₃	CH ₃ CH ₂	CH ₃
A-93	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃
A-94	CH ₂ Ph	CH ₃ CH ₂	CH ₃
A-95	Ph	CH ₃ CH ₂	CH ₃
A-96	H	n-C ₃ H ₇	CH ₃
A-97	CH ₃	n-C ₃ H ₇	CH ₃
A-98	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃
A-99	CH ₂ Ph	n-C ₃ H ₇	CH ₃
A-100	Ph	n-C ₃ H ₇	CH ₃
A-101	H	i-C ₃ H ₇	CH ₃
A-102	CH ₃	i-C ₃ H ₇	CH ₃

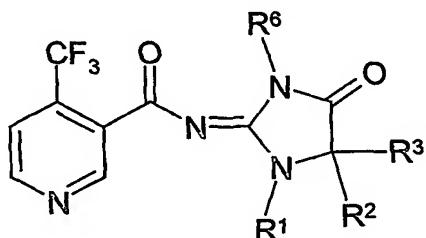
Compound	R ¹	R ²	R ³
A-103	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃
A-104	CH ₂ Ph	i-C ₃ H ₇	CH ₃
A-105	Ph	i-C ₃ H ₇	CH ₃
A-106	H	n-C ₄ H ₉	CH ₃
A-107	CH ₃	n-C ₄ H ₉	CH ₃
A-108	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃
A-109	CH ₂ Ph	n-C ₄ H ₉	CH ₃
A-110	Ph	n-C ₄ H ₉	CH ₃
A-111	H	i-C ₄ H ₉	CH ₃
A-112	CH ₃	i-C ₄ H ₉	CH ₃
A-113	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃
A-114	CH ₂ Ph	i-C ₄ H ₉	CH ₃
A-115	Ph	i-C ₄ H ₉	CH ₃
A-116	H	s-C ₄ H ₉	CH ₃
A-117	CH ₃	s-C ₄ H ₉	CH ₃
A-118	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃
A-119	CH ₂ Ph	s-C ₄ H ₉	CH ₃
A-120	Ph	s-C ₄ H ₉	CH ₃
A-121	H	t-C ₄ H ₉	CH ₃
A-122	CH ₃	t-C ₄ H ₉	CH ₃
A-123	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃
A-124	CH ₂ Ph	t-C ₄ H ₉	CH ₃
A-125	Ph	t-C ₄ H ₉	CH ₃
A-126	H	CH ₂ Ph	CH ₃
A-127	CH ₃	CH ₂ Ph	CH ₃
A-128	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃
A-129	CH ₂ Ph	CH ₂ Ph	CH ₃
A-130	Ph	CH ₂ Ph	CH ₃
A-131	H	Ph	CH ₃
A-132	CH ₃	Ph	CH ₃
A-133	CH ₂ CH=CH ₂	Ph	CH ₃
A-134	CH ₂ Ph	Ph	CH ₃
A-135	Ph	Ph	CH ₃
A-136	H	C ₂ H ₅	C ₂ H ₅
A-137	CH ₃	C ₂ H ₅	C ₂ H ₅
A-138	CH ₂ CH=CH ₂	C ₂ H ₅	C ₂ H ₅
A-139	CH ₂ Ph	C ₂ H ₅	C ₂ H ₅
A-140	Ph	C ₂ H ₅	C ₂ H ₅
A-141	H	n-C ₃ H ₇	C ₂ H ₅
A-142	CH ₃	n-C ₃ H ₇	C ₂ H ₅
A-143	CH ₂ CH=CH ₂	n-C ₃ H ₇	C ₂ H ₅
A-144	CH ₂ Ph	n-C ₃ H ₇	C ₂ H ₅
A-145	Ph	n-C ₃ H ₇	C ₂ H ₅

Compound	R ¹	R ²	R ³
A-146	H	i-C ₃ H ₇	C ₂ H ₅
A-147	CH ₃	i-C ₃ H ₇	C ₂ H ₅
A-148	CH ₂ CH=CH ₂	i-C ₃ H ₇	C ₂ H ₅
A-149	CH ₂ Ph	i-C ₃ H ₇	C ₂ H ₅
A-150	Ph	i-C ₃ H ₇	C ₂ H ₅
A-151	H	n-C ₄ H ₉	C ₂ H ₅
A-152	CH ₃	n-C ₄ H ₉	C ₂ H ₅
A-153	CH ₂ CH=CH ₂	n-C ₄ H ₉	C ₂ H ₅
A-154	CH ₂ Ph	n-C ₄ H ₉	C ₂ H ₅
A-155	Ph	n-C ₄ H ₉	C ₂ H ₅
A-156	H	i-C ₄ H ₉	C ₂ H ₅
A-157	CH ₃	i-C ₄ H ₉	C ₂ H ₅
A-158	CH ₂ CH=CH ₂	i-C ₄ H ₉	C ₂ H ₅
A-159	CH ₂ Ph	i-C ₄ H ₉	C ₂ H ₅
A-160	Ph	i-C ₄ H ₉	C ₂ H ₅
A-161	H	s-C ₄ H ₉	C ₂ H ₅
A-162	CH ₃	s-C ₄ H ₉	C ₂ H ₅
A-163	CH ₂ CH=CH ₂	s-C ₄ H ₉	C ₂ H ₅
A-164	CH ₂ Ph	s-C ₄ H ₉	C ₂ H ₅
A-165	Ph	s-C ₄ H ₉	C ₂ H ₅
A-166	H	t-C ₄ H ₉	C ₂ H ₅
A-167	CH ₃	t-C ₄ H ₉	C ₂ H ₅
A-168	CH ₂ CH=CH ₂	t-C ₄ H ₉	C ₂ H ₅
A-169	CH ₂ Ph	t-C ₄ H ₉	C ₂ H ₅
A-170	Ph	t-C ₄ H ₉	C ₂ H ₅
A-171	H	CH ₂ Ph	C ₂ H ₅
A-172	CH ₃	CH ₂ Ph	C ₂ H ₅
A-173	CH ₂ CH=CH ₂	CH ₂ Ph	C ₂ H ₅
A-174	CH ₂ Ph	CH ₂ Ph	C ₂ H ₅
A-175	Ph	CH ₂ Ph	C ₂ H ₅
A-176	H	Ph	C ₂ H ₅
A-177	CH ₃	Ph	C ₂ H ₅
A-178	CH ₂ CH=CH ₂	Ph	C ₂ H ₅
A-179	CH ₂ Ph	Ph	C ₂ H ₅
A-180	Ph	Ph	C ₂ H ₅
A-181	H		CH ₂ CH ₂
A-182	CH ₃		CH ₂ CH ₂
A-183	CH ₂ CH=CH ₂		CH ₂ CH ₂
A-184	CH ₂ Ph		CH ₂ CH ₂
A-185	Ph		CH ₂ CH ₂
A-186	H		CH ₂ H ₂ CH ₂
A-187	CH ₃		CH ₂ H ₂ CH ₂
A-188	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂

Compound	R ¹	R ²	R ³
A-189	CH ₂ Ph		CH ₂ H ₂ CH ₂
A-190	Ph		CH ₂ H ₂ CH ₂
A-191	H		CH ₂ CH ₂ CH ₂ CH ₂
A-192	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂
A-193	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂
A-194	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂
A-195	Ph		CH ₂ CH ₂ CH ₂ CH ₂
A-196	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂
A-197	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂
A-198	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂
A-199	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂
A-200	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂

Table 2

Compounds of formula (Ib):



5

(Ib)

Compound	R ¹	R ²	R ³	R ⁶
B-1	H	H	H	H
B-2	CH ₃	H	H	H
B-3	CH ₂ CH=CH ₂	H	H	H
B-4	CH ₂ Ph	H	H	H
B-5	Ph	H	H	H
B-6	H	CH ₃	H	H
B-7	CH ₃	CH ₃	H	H
B-8	CH ₂ CH=CH ₂	CH ₃	H	H
B-9	CH ₂ Ph	CH ₃	H	H
B-10	Ph	CH ₃	H	H
B-11	H	CH ₃ CH ₂	H	H
B-12	CH ₃	CH ₃ CH ₂	H	H
B-13	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	H
B-14	CH ₂ Ph	CH ₃ CH ₂	H	H
B-15	Ph	CH ₃ CH ₂	H	H
B-16	H	n-C ₃ H ₇	H	H
B-17	CH ₃	n-C ₃ H ₇	H	H

Compound	R ¹	R ²	R ³	R ⁶
B-18	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	H
B-19	CH ₂ Ph	n-C ₃ H ₇	H	H
B-20	Ph	n-C ₃ H ₇	H	H
B-21	H	i-C ₃ H ₇	H	H
B-22	CH ₃	i-C ₃ H ₇	H	H
B-23	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	H
B-24	CH ₂ Ph	i-C ₃ H ₇	H	H
B-25	Ph	i-C ₃ H ₇	H	H
B-26	H	n-C ₄ H ₉	H	H
B-27	CH ₃	n-C ₄ H ₉	H	H
B-28	CH ₂ CH=CH ₂	n-C ₄ H ₉	H	H
B-29	CH ₂ Ph	n-C ₄ H ₉	H	H
B-30	Ph	n-C ₄ H ₉	H	H
B-31	H	i-C ₄ H ₉	H	H
B-32	CH ₃	i-C ₄ H ₉	H	H
B-33	CH ₂ CH=CH ₂	i-C ₄ H ₉	H	H
B-34	CH ₂ Ph	i-C ₄ H ₉	H	H
B-35	Ph	i-C ₄ H ₉	H	H
B-36	H	s-C ₄ H ₉	H	H
B-37	CH ₃	s-C ₄ H ₉	H	H
B-38	CH ₂ CH=CH ₂	s-C ₄ H ₉	H	H
B-39	CH ₂ Ph	s-C ₄ H ₉	H	H
B-40	Ph	s-C ₄ H ₉	H	H
B-41	H	t-C ₄ H ₉	H	H
B-42	CH ₃	t-C ₄ H ₉	H	H
B-43	CH ₂ CH=CH ₂	t-C ₄ H ₉	H	H
B-44	CH ₂ Ph	t-C ₄ H ₉	H	H
B-45	Ph	t-C ₄ H ₉	H	H
B-46	H	CH ₂ Ph	H	H
B-47	CH ₃	CH ₂ Ph	H	H
B-48	CH ₂ CH=CH ₂	CH ₂ Ph	H	H
B-49	CH ₂ Ph	CH ₂ Ph	H	H
B-50	Ph	CH ₂ Ph	H	H
B-51	H	Ph	H	H
B-52	CH ₃	Ph	H	H
B-53	CH ₂ CH=CH ₂	Ph	H	H
B-54	CH ₂ Ph	Ph	H	H
B-55	Ph	Ph	H	H
B-56	H	CH ₂ OH	H	H
B-57	CH ₃	CH ₂ OH	H	H
B-58	CH ₂ CH=CH ₂	CH ₂ OH	H	H
B-59	CH ₂ Ph	CH ₂ OH	H	H

Compound	R ¹	R ²	R ³	R ⁶
B-60	Ph	CH ₂ OH	H	H
B-61	H	CH(OH)CH ₃	H	H
B-62	CH ₃	CH(OH)CH ₃	H	H
B-63	CH ₂ CH=CH ₂	CH(OH)CH ₃	H	H
B-64	CH ₂ Ph	CH(OH)CH ₃	H	H
B-65	Ph	CH(OH)CH ₃	H	H
B-66	H	CH ₂ SH	H	H
B-67	CH ₃	CH ₂ SH	H	H
B-68	CH ₂ CH=CH ₂	CH ₂ SH	H	H
B-69	CH ₂ Ph	CH ₂ SH	H	H
B-70	Ph	CH ₂ SH	H	H
B-71	H	CH ₂ SCH ₂ CH ₃	H	H
B-72	CH ₃	CH ₂ SCH ₂ CH ₃	H	H
B-73	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H	H
B-74	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H	H
B-75	Ph	CH ₂ SCH ₂ CH ₃	H	H
B-76	H	CH ₂ CONH ₂	H	H
B-77	CH ₃	CH ₂ CONH ₂	H	H
B-78	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H	H
B-79	CH ₂ Ph	CH ₂ CONH ₂	H	H
B-80	Ph	CH ₂ CONH ₂	H	H
B-81	H	CH ₂ CH ₂ CONH ₂	H	H
B-82	CH ₃	CH ₂ CH ₂ CONH ₂	H	H
B-83	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	H	H
B-84	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	H	H
B-85	Ph	CH ₂ CH ₂ CONH ₂	H	H
B-86	H	CH ₃	CH ₃	H
B-87	CH ₃	CH ₃	CH ₃	H
B-88	CH ₂ CH=CH ₂	CH ₃	CH ₃	H
B-89	CH ₂ Ph	CH ₃	CH ₃	H
B-90	Ph	CH ₃	CH ₃	H
B-91	H	CH ₃ CH ₂	CH ₃	H
B-92	CH ₃	CH ₃ CH ₂	CH ₃	H
B-93	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	H
B-94	CH ₂ Ph	CH ₃ CH ₂	CH ₃	H
B-95	Ph	CH ₃ CH ₂	CH ₃	H
B-96	H	n-C ₃ H ₇	CH ₃	H
B-97	CH ₃	n-C ₃ H ₇	CH ₃	H
B-98	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	H
B-99	CH ₂ Ph	n-C ₃ H ₇	CH ₃	H
B-100	Ph	n-C ₃ H ₇	CH ₃	H
B-101	H	i-C ₃ H ₇	CH ₃	H

Compound	R ¹	R ²	R ³	R ⁶
B-102	CH ₃	i-C ₃ H ₇	CH ₃	H
B-103	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	H
B-104	CH ₂ Ph	i-C ₃ H ₇	CH ₃	H
B-105	Ph	i-C ₃ H ₇	CH ₃	H
B-106	H	n-C ₄ H ₉	CH ₃	H
B-107	CH ₃	n-C ₄ H ₉	CH ₃	H
B-108	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃	H
B-109	CH ₂ Ph	n-C ₄ H ₉	CH ₃	H
B-110	Ph	n-C ₄ H ₉	CH ₃	H
B-111	H	i-C ₄ H ₉	CH ₃	H
B-112	CH ₃	i-C ₄ H ₉	CH ₃	H
B-113	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃	H
B-114	CH ₂ Ph	i-C ₄ H ₉	CH ₃	H
B-115	Ph	i-C ₄ H ₉	CH ₃	H
B-116	H	s-C ₄ H ₉	CH ₃	H
B-117	CH ₃	s-C ₄ H ₉	CH ₃	H
B-118	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃	H
B-119	CH ₂ Ph	s-C ₄ H ₉	CH ₃	H
B-120	Ph	s-C ₄ H ₉	CH ₃	H
B-121	H	t-C ₄ H ₉	CH ₃	H
B-122	CH ₃	t-C ₄ H ₉	CH ₃	H
B-123	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃	H
B-124	CH ₂ Ph	t-C ₄ H ₉	CH ₃	H
B-125	Ph	t-C ₄ H ₉	CH ₃	H
B-126	H	CH ₂ Ph	CH ₃	H
B-127	CH ₃	CH ₂ Ph	CH ₃	H
B-128	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	H
B-129	CH ₂ Ph	CH ₂ Ph	CH ₃	H
B-130	Ph	CH ₂ Ph	CH ₃	H
B-131	H	Ph	CH ₃	H
B-132	CH ₃	Ph	CH ₃	H
B-133	CH ₂ CH=CH ₂	Ph	CH ₃	H
B-134	CH ₂ Ph	Ph	CH ₃	H
B-135	Ph	Ph	CH ₃	H
B-136	H	C ₂ H ₅	C ₂ H ₅	H
B-137	CH ₃	C ₂ H ₅	C ₂ H ₅	H
B-138	CH ₂ CH=CH ₂	C ₂ H ₅	C ₂ H ₅	H
B-139	CH ₂ Ph	C ₂ H ₅	C ₂ H ₅	H
B-140	Ph	C ₂ H ₅	C ₂ H ₅	H
B-141	H	n-C ₃ H ₇	C ₂ H ₅	H
B-142	CH ₃	n-C ₃ H ₇	C ₂ H ₅	H
B-143	CH ₂ CH=CH ₂	n-C ₃ H ₇	C ₂ H ₅	H

Compound	R ¹	R ²	R ³	R ⁶
B-144	CH ₂ Ph	n-C ₃ H ₇	C ₂ H ₅	H
B-145	Ph	n-C ₃ H ₇	C ₂ H ₅	H
B-146	H	i-C ₃ H ₇	C ₂ H ₅	H
B-147	CH ₃	i-C ₃ H ₇	C ₂ H ₅	H
B-148	CH ₂ CH=CH ₂	i-C ₃ H ₇	C ₂ H ₅	H
B-149	CH ₂ Ph	i-C ₃ H ₇	C ₂ H ₅	H
B-150	Ph	i-C ₃ H ₇	C ₂ H ₅	H
B-151	H	n-C ₄ H ₉	C ₂ H ₅	H
B-152	CH ₃	n-C ₄ H ₉	C ₂ H ₅	H
B-153	CH ₂ CH=CH ₂	n-C ₄ H ₉	C ₂ H ₅	H
B-154	CH ₂ Ph	n-C ₄ H ₉	C ₂ H ₅	H
B-155	Ph	n-C ₄ H ₉	C ₂ H ₅	H
B-156	H	i-C ₄ H ₉	C ₂ H ₅	H
B-157	CH ₃	i-C ₄ H ₉	C ₂ H ₅	H
B-158	CH ₂ CH=CH ₂	i-C ₄ H ₉	C ₂ H ₅	H
B-159	CH ₂ Ph	i-C ₄ H ₉	C ₂ H ₅	H
B-160	Ph	i-C ₄ H ₉	C ₂ H ₅	H
B-161	H	s-C ₄ H ₉	C ₂ H ₅	H
B-162	CH ₃	s-C ₄ H ₉	C ₂ H ₅	H
B-163	CH ₂ CH=CH ₂	s-C ₄ H ₉	C ₂ H ₅	H
B-164	CH ₂ Ph	s-C ₄ H ₉	C ₂ H ₅	H
B-165	Ph	s-C ₄ H ₉	C ₂ H ₅	H
B-166	H	t-C ₄ H ₉	C ₂ H ₅	H
B-167	CH ₃	t-C ₄ H ₉	C ₂ H ₅	H
B-168	CH ₂ CH=CH ₂	t-C ₄ H ₉	C ₂ H ₅	H
B-169	CH ₂ Ph	t-C ₄ H ₉	C ₂ H ₅	H
B-170	Ph	t-C ₄ H ₉	C ₂ H ₅	H
B-171	H	CH ₂ Ph	C ₂ H ₅	H
B-172	CH ₃	CH ₂ Ph	C ₂ H ₅	H
B-173	CH ₂ CH=CH ₂	CH ₂ Ph	C ₂ H ₅	H
B-174	CH ₂ Ph	CH ₂ Ph	C ₂ H ₅	H
B-175	Ph	CH ₂ Ph	C ₂ H ₅	H
B-176	H	Ph	C ₂ H ₅	H
B-177	CH ₃	Ph	C ₂ H ₅	H
B-178	CH ₂ CH=CH ₂	Ph	C ₂ H ₅	H
B-179	CH ₂ Ph	Ph	C ₂ H ₅	H
B-180	Ph	Ph	C ₂ H ₅	H
B-181	H		CH ₂ CH ₂	H
B-182	CH ₃		CH ₂ CH ₂	H
B-183	CH ₂ CH=CH ₂		CH ₂ CH ₂	H
B-184	CH ₂ Ph		CH ₂ CH ₂	H
B-185	Ph		CH ₂ CH ₂	H

Compound	R ¹	R ²	R ³	R ⁶
B-186	H		CH ₂ H ₂ CH ₂	H
B-187	CH ₃		CH ₂ H ₂ CH ₂	H
B-188	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	H
B-189	CH ₂ Ph		CH ₂ H ₂ CH ₂	H
B-190	Ph		CH ₂ H ₂ CH ₂	H
B-191	H		CH ₂ CH ₂ CH ₂ CH ₂	H
B-192	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	H
B-193	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	H
B-194	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	H
B-195	Ph		CH ₂ CH ₂ CH ₂ CH ₂	H
B-196	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
B-197	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
B-198	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
B-199	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
B-200	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
B-201	H	H	H	CH ₃
B-202	CH ₃	H	H	CH ₃
B-203	CH ₂ CH=CH ₂	H	H	CH ₃
B-204	CH ₂ Ph	H	H	CH ₃
B-205	Ph	H	H	CH ₃
B-206	H	CH ₃	H	CH ₃
B-207	CH ₃	CH ₃	H	CH ₃
B-208	CH ₂ CH=CH ₂	CH ₃	H	CH ₃
B-209	CH ₂ Ph	CH ₃	H	CH ₃
B-210	Ph	CH ₃	H	CH ₃
B-211	H	CH ₃ CH ₂	H	CH ₃
B-212	CH ₃	CH ₃ CH ₂	H	CH ₃
B-213	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₃
B-214	CH ₂ Ph	CH ₃ CH ₂	H	CH ₃
B-215	Ph	CH ₃ CH ₂	H	CH ₃
B-216	H	n-C ₃ H ₇	H	CH ₃
B-217	CH ₃	n-C ₃ H ₇	H	CH ₃
B-218	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₃
B-219	CH ₂ Ph	n-C ₃ H ₇	H	CH ₃
B-220	Ph	n-C ₃ H ₇	H	CH ₃
B-221	H	i-C ₃ H ₇	H	CH ₃
B-222	CH ₃	i-C ₃ H ₇	H	CH ₃
B-223	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₃
B-224	CH ₂ Ph	i-C ₃ H ₇	H	CH ₃
B-225	Ph	i-C ₃ H ₇	H	CH ₃
B-226	H	n-C ₄ H ₉	H	CH ₃
B-227	CH ₃	n-C ₄ H ₉	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
B-228	CH ₂ CH=CH ₂	n-C ₄ H ₉	H	CH ₃
B-229	CH ₂ Ph	n-C ₄ H ₉	H	CH ₃
B-230	Ph	n-C ₄ H ₉	H	CH ₃
B-231	H	i-C ₄ H ₉	H	CH ₃
B-232	CH ₃	i-C ₄ H ₉	H	CH ₃
B-233	CH ₂ CH=CH ₂	i-C ₄ H ₉	H	CH ₃
B-234	CH ₂ Ph	i-C ₄ H ₉	H	CH ₃
B-235	Ph	i-C ₄ H ₉	H	CH ₃
B-236	H	s-C ₄ H ₉	H	CH ₃
B-237	CH ₃	s-C ₄ H ₉	H	CH ₃
B-238	CH ₂ CH=CH ₂	s-C ₄ H ₉	H	CH ₃
B-239	CH ₂ Ph	s-C ₄ H ₉	H	CH ₃
B-240	Ph	s-C ₄ H ₉	H	CH ₃
B-241	H	t-C ₄ H ₉	H	CH ₃
B-242	CH ₃	t-C ₄ H ₉	H	CH ₃
B-243	CH ₂ CH=CH ₂	t-C ₄ H ₉	H	CH ₃
B-244	CH ₂ Ph	t-C ₄ H ₉	H	CH ₃
B-245	Ph	t-C ₄ H ₉	H	CH ₃
B-246	H	CH ₂ Ph	H	CH ₃
B-247	CH ₃	CH ₂ Ph	H	CH ₃
B-248	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₃
B-249	CH ₂ Ph	CH ₂ Ph	H	CH ₃
B-250	Ph	CH ₂ Ph	H	CH ₃
B-251	H	Ph	H	CH ₃
B-252	CH ₃	Ph	H	CH ₃
B-253	CH ₂ CH=CH ₂	Ph	H	CH ₃
B-254	CH ₂ Ph	Ph	H	CH ₃
B-255	Ph	Ph	H	CH ₃
B-256	H	CH ₂ OH	H	CH ₃
B-257	CH ₃	CH ₂ OH	H	CH ₃
B-258	CH ₂ CH=CH ₂	CH ₂ OH	H	CH ₃
B-259	CH ₂ Ph	CH ₂ OH	H	CH ₃
B-260	Ph	CH ₂ OH	H	CH ₃
B-261	H	CH(OH)CH ₃	H	CH ₃
B-262	CH ₃	CH(OH)CH ₃	H	CH ₃
B-263	CH ₂ CH=CH ₂	CH(OH)CH ₃	H	CH ₃
B-264	CH ₂ Ph	CH(OH)CH ₃	H	CH ₃
B-265	Ph	CH(OH)CH ₃	H	CH ₃
B-266	H	CH ₂ SH	H	CH ₃
B-267	CH ₃	CH ₂ SH	H	CH ₃
B-268	CH ₂ CH=CH ₂	CH ₂ SH	H	CH ₃
B-269	CH ₂ Ph	CH ₂ SH	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
B-270	Ph	CH ₂ SH	H	CH ₃
B-271	H	CH ₂ SCH ₂ CH ₃	H	CH ₃
B-272	CH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
B-273	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H	CH ₃
B-274	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
B-275	Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
B-276	H	CH ₂ CONH ₂	H	CH ₃
B-277	CH ₃	CH ₂ CONH ₂	H	CH ₃
B-278	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H	CH ₃
B-279	CH ₂ Ph	CH ₂ CONH ₂	H	CH ₃
B-280	Ph	CH ₂ CONH ₂	H	CH ₃
B-281	H	CH ₂ CH ₂ CONH ₂	H	CH ₃
B-282	CH ₃	CH ₂ CH ₂ CONH ₂	H	CH ₃
B-283	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	H	CH ₃
B-284	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	H	CH ₃
B-285	Ph	CH ₂ CH ₂ CONH ₂	H	CH ₃
B-286	H	CH ₃	CH ₃	CH ₃
B-287	CH ₃	CH ₃	CH ₃	CH ₃
B-288	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₃
B-289	CH ₂ Ph	CH ₃	CH ₃	CH ₃
B-290	Ph	CH ₃	CH ₃	CH ₃
B-291	H	CH ₃ CH ₂	CH ₃	CH ₃
B-292	CH ₃	CH ₃ CH ₂	CH ₃	CH ₃
B-293	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₃
B-294	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₃
B-295	Ph	CH ₃ CH ₂	CH ₃	CH ₃
B-296	H	n-C ₃ H ₇	CH ₃	CH ₃
B-297	CH ₃	n-C ₃ H ₇	CH ₃	CH ₃
B-298	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₃
B-299	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₃
B-300	Ph	n-C ₃ H ₇	CH ₃	CH ₃
B-301	H	i-C ₃ H ₇	CH ₃	CH ₃
B-302	CH ₃	i-C ₃ H ₇	CH ₃	CH ₃
B-303	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₃
B-304	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₃
B-305	Ph	i-C ₃ H ₇	CH ₃	CH ₃
B-306	H	n-C ₄ H ₉	CH ₃	CH ₃
B-307	CH ₃	n-C ₄ H ₉	CH ₃	CH ₃
B-308	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃	CH ₃
B-309	CH ₂ Ph	n-C ₄ H ₉	CH ₃	CH ₃
B-310	Ph	n-C ₄ H ₉	CH ₃	CH ₃
B-311	H	i-C ₄ H ₉	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
B-312	CH ₃	i-C ₄ H ₉	CH ₃	CH ₃
B-313	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃	CH ₃
B-314	CH ₂ Ph	i-C ₄ H ₉	CH ₃	CH ₃
B-315	Ph	i-C ₄ H ₉	CH ₃	CH ₃
B-316	H	s-C ₄ H ₉	CH ₃	CH ₃
B-317	CH ₃	s-C ₄ H ₉	CH ₃	CH ₃
B-318	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃	CH ₃
B-319	CH ₂ Ph	s-C ₄ H ₉	CH ₃	CH ₃
B-320	Ph	s-C ₄ H ₉	CH ₃	CH ₃
B-321	H	t-C ₄ H ₉	CH ₃	CH ₃
B-322	CH ₃	t-C ₄ H ₉	CH ₃	CH ₃
B-323	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃	CH ₃
B-324	CH ₂ Ph	t-C ₄ H ₉	CH ₃	CH ₃
B-325	Ph	t-C ₄ H ₉	CH ₃	CH ₃
B-326	H	CH ₂ Ph	CH ₃	CH ₃
B-327	CH ₃	CH ₂ Ph	CH ₃	CH ₃
B-328	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₃
B-329	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₃
B-330	Ph	CH ₂ Ph	CH ₃	CH ₃
B-331	H	Ph	CH ₃	CH ₃
B-332	CH ₃	Ph	CH ₃	CH ₃
B-333	CH ₂ CH=CH ₂	Ph	CH ₃	CH ₃
B-334	CH ₂ Ph	Ph	CH ₃	CH ₃
B-335	Ph	Ph	CH ₃	CH ₃
B-336	H		CH ₂ CH ₂	CH ₃
B-337	CH ₃		CH ₂ CH ₂	CH ₃
B-338	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₃
B-339	CH ₂ Ph		CH ₂ CH ₂	CH ₃
B-340	Ph		CH ₂ CH ₂	CH ₃
B-341	H		CH ₂ H ₂ CH ₂	CH ₃
B-342	CH ₃		CH ₂ H ₂ CH ₂	CH ₃
B-343	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₃
B-344	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₃
B-345	Ph		CH ₂ H ₂ CH ₂	CH ₃
B-346	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-347	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-348	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-349	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-350	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-351	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-352	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
B-353	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
B-354	CH ₂ Ph	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃	
B-355	Ph	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃	
B-356	H	H	H	CH ₃ CH ₂
B-357	H	CH ₃	H	CH ₃ CH ₂
B-358	H	CH ₃ CH ₂	H	CH ₃ CH ₂
B-359	H	n-C ₃ H ₇	H	CH ₃ CH ₂
B-360	H	i-C ₃ H ₇	H	CH ₃ CH ₂
B-361	H	n-C ₄ H ₉	H	CH ₃ CH ₂
B-362	H	i-C ₄ H ₉	H	CH ₃ CH ₂
B-363	H	s-C ₄ H ₉	H	CH ₃ CH ₂
B-364	H	t-C ₄ H ₉	H	CH ₃ CH ₂
B-365	H	CH ₂ Ph	H	CH ₃ CH ₂
B-366	H	Ph	H	CH ₃ CH ₂
B-367	H	CH ₂ OH	H	CH ₃ CH ₂
B-368	H	CH(OH)CH ₃	H	CH ₃ CH ₂
B-369	H	CH ₂ SH	H	CH ₃ CH ₂
B-370	H	CH ₂ SCH ₂ CH ₃	H	CH ₃ CH ₂
B-371	H	CH ₂ CONH ₂	H	CH ₃ CH ₂
B-372	H	CH ₂ CH ₂ CONH ₂	H	CH ₃ CH ₂
B-373	H	CH ₃	CH ₃	CH ₃ CH ₂
B-374	H	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
B-375	H	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
B-376	H	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
B-377	H	n-C ₄ H ₉	CH ₃	CH ₃ CH ₂
B-378	H	i-C ₄ H ₉	CH ₃	CH ₃ CH ₂
B-379	H	s-C ₄ H ₉	CH ₃	CH ₃ CH ₂
B-380	H	t-C ₄ H ₉	CH ₃	CH ₃ CH ₂
B-381	H	CH ₂ Ph	CH ₃	CH ₃ CH ₂
B-382	H	Ph	CH ₃	CH ₃ CH ₂
B-383	H	CH ₂ OH	CH ₃	CH ₃ CH ₂
B-384	H	CH(OH)CH ₃	CH ₃	CH ₃ CH ₂
B-385	H	CH ₂ SH	CH ₃	CH ₃ CH ₂
B-386	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃ CH ₂
B-387	H	CH ₂ CONH ₂	CH ₃	CH ₃ CH ₂
B-388	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃ CH ₂
B-389	H	H	H	i-C ₃ H ₇
B-390	H	CH ₃	H	i-C ₃ H ₇
B-391	H	CH ₃ CH ₂	H	i-C ₃ H ₇
B-392	H	n-C ₃ H ₇	H	i-C ₃ H ₇
B-393	H	i-C ₃ H ₇	H	i-C ₃ H ₇
B-394	H	n-C ₄ H ₉	H	i-C ₃ H ₇
B-395	H	i-C ₄ H ₉	H	i-C ₃ H ₇

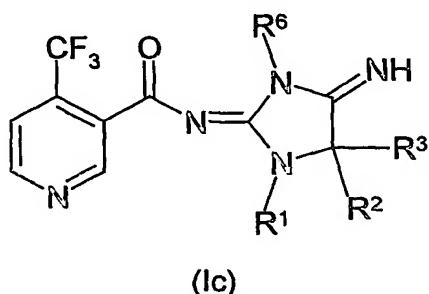
Compound	R ¹	R ²	R ³	R ⁶
B-396	H	s-C ₄ H ₉	H	i-C ₃ H ₇
B-397	H	t-C ₄ H ₉	H	i-C ₃ H ₇
B-398	H	CH ₂ Ph	H	i-C ₃ H ₇
B-399	H	Ph	H	i-C ₃ H ₇
B-400	H	CH ₂ OH	H	i-C ₃ H ₇
B-401	H	CH(OH)CH ₃	H	i-C ₃ H ₇
B-402	H	CH ₂ SH	H	i-C ₃ H ₇
B-403	H	CH ₂ SCH ₂ CH ₃	H	i-C ₃ H ₇
B-404	H	CH ₂ CONH ₂	H	i-C ₃ H ₇
B-405	H	CH ₂ CH ₂ CONH ₂	H	i-C ₃ H ₇
B-406	H	CH ₃	H	i-C ₃ H ₇
B-407	H	CH ₃ CH ₂	CH ₃	i-C ₃ H ₇
B-408	H	n-C ₃ H ₇	CH ₃	i-C ₃ H ₇
B-409	H	i-C ₃ H ₇	CH ₃	i-C ₃ H ₇
B-410	H	n-C ₄ H ₉	CH ₃	i-C ₃ H ₇
B-411	H	i-C ₄ H ₉	CH ₃	i-C ₃ H ₇
B-412	H	s-C ₄ H ₉	CH ₃	i-C ₃ H ₇
B-413	H	t-C ₄ H ₉	CH ₃	i-C ₃ H ₇
B-414	H	CH ₂ Ph	CH ₃	i-C ₃ H ₇
B-415	H	Ph	CH ₃	i-C ₃ H ₇
B-416	H	CH ₂ OH	CH ₃	i-C ₃ H ₇
B-417	H	CH(OH)CH ₃	CH ₃	i-C ₃ H ₇
B-418	H	CH ₂ SH	CH ₃	i-C ₃ H ₇
B-419	H	CH ₂ SCH ₂ CH ₃	CH ₃	i-C ₃ H ₇
B-420	H	CH ₂ CONH ₂	CH ₃	i-C ₃ H ₇
B-421	H	CH ₂ CH ₂ CONH ₂	CH ₃	i-C ₃ H ₇
B-422	H	H	H	t-C ₄ H ₉
B-423	H	CH ₃	H	t-C ₄ H ₉
B-424	H	CH ₃ CH ₂	H	t-C ₄ H ₉
B-425	H	n-C ₃ H ₇	H	t-C ₄ H ₉
B-426	H	i-C ₃ H ₇	H	t-C ₄ H ₉
B-427	H	n-C ₄ H ₉	H	t-C ₄ H ₉
B-428	H	i-C ₄ H ₉	H	t-C ₄ H ₉
B-429	H	s-C ₄ H ₉	H	t-C ₄ H ₉
B-430	H	t-C ₄ H ₉	H	t-C ₄ H ₉
B-431	H	CH ₂ Ph	H	t-C ₄ H ₉
B-432	H	Ph	H	t-C ₄ H ₉
B-433	H	CH ₂ OH	H	t-C ₄ H ₉
B-434	H	CH(OH)CH ₃	H	t-C ₄ H ₉
B-435	H	CH ₂ SH	H	t-C ₄ H ₉
B-436	H	CH ₂ SCH ₂ CH ₃	H	t-C ₄ H ₉
B-437	H	CH ₂ CONH ₂	H	t-C ₄ H ₉

Compound	R ¹	R ²	R ³	R ⁶
B-438	H	CH ₂ CH ₂ CONH ₂	H	t-C ₄ H ₉
B-439	H	CH ₃	CH ₃	t-C ₄ H ₉
B-440	H	CH ₃ CH ₂	CH ₃	t-C ₄ H ₉
B-441	H	n-C ₃ H ₇	CH ₃	t-C ₄ H ₉
B-442	H	i-C ₃ H ₇	CH ₃	t-C ₄ H ₉
B-443	H	n-C ₄ H ₉	CH ₃	t-C ₄ H ₉
B-444	H	i-C ₄ H ₉	CH ₃	t-C ₄ H ₉
B-445	H	s-C ₄ H ₉	CH ₃	t-C ₄ H ₉
B-446	H	t-C ₄ H ₉	CH ₃	t-C ₄ H ₉
B-447	H	CH ₂ Ph	CH ₃	t-C ₄ H ₉
B-448	H	Ph	CH ₃	t-C ₄ H ₉
B-449	H	CH ₂ OH	CH ₃	t-C ₄ H ₉
B-450	H	CH(OH)CH ₃	CH ₃	t-C ₄ H ₉
B-451	H	CH ₂ SH	CH ₃	t-C ₄ H ₉
B-452	H	CH ₂ SCH ₂ CH ₃	CH ₃	t-C ₄ H ₉
B-453	H	CH ₂ CONH ₂	CH ₃	t-C ₄ H ₉
B-454	H	CH ₂ CH ₂ CONH ₂	CH ₃	t-C ₄ H ₉
B-455	H	H	H	CH ₂ CH=CH ₂
B-456	H	CH ₃	H	CH ₂ CH=CH ₂
B-457	H	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
B-458	H	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
B-459	H	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
B-460	H	n-C ₄ H ₉	H	CH ₂ CH=CH ₂
B-461	H	i-C ₄ H ₉	H	CH ₂ CH=CH ₂
B-462	H	s-C ₄ H ₉	H	CH ₂ CH=CH ₂
B-463	H	t-C ₄ H ₉	H	CH ₂ CH=CH ₂
B-464	H	CH ₂ Ph	H	CH ₂ CH=CH ₂
B-465	H	Ph	H	CH ₂ CH=CH ₂
B-466	H	CH ₂ OH	H	CH ₂ CH=CH ₂
B-467	H	CH(OH)CH ₃	H	CH ₂ CH=CH ₂
B-468	H	CH ₂ SH	H	CH ₂ CH=CH ₂
B-469	H	CH ₂ SCH ₂ CH ₃	H	CH ₂ CH=CH ₂
B-470	H	CH ₂ CONH ₂	H	CH ₂ CH=CH ₂
B-471	H	CH ₂ CH ₂ CONH ₂	H	CH ₂ CH=CH ₂
B-472	H	CH ₃	CH ₃	CH ₂ CH=CH ₂
B-473	H	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
B-474	H	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
B-475	H	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
B-476	H	n-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
B-477	H	i-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
B-478	H	s-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
B-479	H	t-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R ⁶
B-480	H	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
B-481	H	Ph	CH ₃	CH ₂ CH=CH ₂
B-482	H	CH ₂ OH	CH ₃	CH ₂ CH=CH ₂
B-483	H	CH(OH)CH ₃	CH ₃	CH ₂ CH=CH ₂
B-484	H	CH ₂ SH	CH ₃	CH ₂ CH=CH ₂
B-485	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₂ CH=CH ₂
B-486	H	CH ₂ CONH ₂	CH ₃	CH ₂ CH=CH ₂
B-487	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₂ CH=CH ₂
B-488	H	H	H	CH ₂ Ph
B-489	H	CH ₃	H	CH ₂ Ph
B-490	H	CH ₃ CH ₂	H	CH ₂ Ph
B-491	H	n-C ₃ H ₇	H	CH ₂ Ph
B-492	H	i-C ₃ H ₇	H	CH ₂ Ph
B-493	H	n-C ₄ H ₉	H	CH ₂ Ph
B-494	H	i-C ₄ H ₉	H	CH ₂ Ph
B-495	H	s-C ₄ H ₉	H	CH ₂ Ph
B-496	H	t-C ₄ H ₉	H	CH ₂ Ph
B-497	H	CH ₂ Ph	H	CH ₂ Ph
B-498	H	Ph	H	CH ₂ Ph
B-499	H	CH ₂ OH	H	CH ₂ Ph
B-500	H	CH(OH)CH ₃	H	CH ₂ Ph
B-501	H	CH ₂ SH	H	CH ₂ Ph
B-502	H	CH ₂ SCH ₂ CH ₃	H	CH ₂ Ph
B-503	H	CH ₂ CONH ₂	H	CH ₂ Ph
B-504	H	CH ₂ CH ₂ CONH ₂	H	CH ₂ Ph
B-505	H	CH ₃	CH ₃	CH ₂ Ph
B-506	H	CH ₃ CH ₂	CH ₃	CH ₂ Ph
B-507	H	n-C ₃ H ₇	CH ₃	CH ₂ Ph
B-508	H	i-C ₃ H ₇	CH ₃	CH ₂ Ph
B-509	H	n-C ₄ H ₉	CH ₃	CH ₂ Ph
B-510	H	i-C ₄ H ₉	CH ₃	CH ₂ Ph
B-511	H	s-C ₄ H ₉	CH ₃	CH ₂ Ph
B-512	H	t-C ₄ H ₉	CH ₃	CH ₂ Ph
B-513	H	CH ₂ Ph	CH ₃	CH ₂ Ph
B-514	H	Ph	CH ₃	CH ₂ Ph
B-515	H	CH ₂ OH	CH ₃	CH ₂ Ph
B-516	H	CH(OH)CH ₃	CH ₃	CH ₂ Ph
B-517	H	CH ₂ SH	CH ₃	CH ₂ Ph
B-518	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₂ Ph
B-519	H	CH ₂ CONH ₂	CH ₃	CH ₂ Ph
B-520	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₂ Ph
B-521	H	H	H	CH ₂ (Ph-2-Cl)

Compound	R ¹	R ²	R ³	R ⁶
B-522	H	H	H	CH ₂ (Ph-3-Cl)
B-523	H	H	H	CH ₂ (Ph-4-Cl)
B-524	H	CH ₃	H	CH ₂ (Ph-2-Cl)
B-525	H	CH ₃	H	CH ₂ (Ph-3-Cl)
B-526	H	CH ₃	H	CH ₂ (Ph-4-Cl)
B-527	H	CH ₃	CH ₃	CH ₂ (Ph-2-Cl)
B-528	H	CH ₃	CH ₃	CH ₂ (Ph-3-Cl)
B-529	H	CH ₃	CH ₃	CH ₂ (Ph-4-Cl)
B-530	H	H	H	Ph
B-531	H	CH ₃	H	Ph
B-532	H	CH ₃	CH ₃	Ph
B-533	H	H	H	2-CH ₃ -4-C ₃ F ₇ -Ph
B-534	H	CH ₃	H	2-CH ₃ -4-C ₃ F ₇ -Ph
B-535	H	CH ₃	CH ₃	2-CH ₃ -4-C ₃ F ₇ -Ph
B-536	H	H	H	CH ₂ CO ₂ CH ₃
B-537	H	CH ₃	H	CH ₂ CO ₂ CH ₃
B-538	H	CH ₃	CH ₃	CH ₂ CO ₂ CH ₃
B-539	H	H	H	C(CH ₃) ₂ CO ₂ CH ₂ Ph
B-540	H	CH ₃	H	C(CH ₃) ₂ CO ₂ CH ₂ Ph
B-541	H	CH ₃	CH ₃	C(CH ₃) ₂ CO ₂ CH ₂ Ph

Table 3
Compounds of formula (Ic):



Compound	R ¹	R ²	R ³	R ⁶
C-1	H	H	H	H
C-2	CH ₃	H	H	H
C-3	CH ₂ CH=CH ₂	H	H	H
C-4	CH ₂ Ph	H	H	H
C-5	Ph	H	H	H
C-6	H	CH ₃	H	H
C-7	CH ₃	CH ₃	H	H

Compound	R ¹	R ²	R ³	R ⁶
C-8	CH ₂ CH=CH ₂	CH ₃	H	H
C-9	CH ₂ Ph	CH ₃	H	H
C-10	Ph	CH ₃	H	H
C-11	H	CH ₃ CH ₂	H	H
C-12	CH ₃	CH ₃ CH ₂	H	H
C-13	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	H
C-14	CH ₂ Ph	CH ₃ CH ₂	H	H
C-15	Ph	CH ₃ CH ₂	H	H
C-16	H	n-C ₃ H ₇	H	H
C-17	CH ₃	n-C ₃ H ₇	H	H
C-18	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	H
C-19	CH ₂ Ph	n-C ₃ H ₇	H	H
C-20	Ph	n-C ₃ H ₇	H	H
C-21	H	i-C ₃ H ₇	H	H
C-22	CH ₃	i-C ₃ H ₇	H	H
C-23	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	H
C-24	CH ₂ Ph	i-C ₃ H ₇	H	H
C-25	Ph	i-C ₃ H ₇	H	H
C-26	H	n-C ₄ H ₉	H	H
C-27	CH ₃	n-C ₄ H ₉	H	H
C-28	CH ₂ CH=CH ₂	n-C ₄ H ₉	H	H
C-29	CH ₂ Ph	n-C ₄ H ₉	H	H
C-30	Ph	n-C ₄ H ₉	H	H
C-31	H	i-C ₄ H ₉	H	H
C-32	CH ₃	i-C ₄ H ₉	H	H
C-33	CH ₂ CH=CH ₂	i-C ₄ H ₉	H	H
C-34	CH ₂ Ph	i-C ₄ H ₉	H	H
C-35	Ph	i-C ₄ H ₉	H	H
C-36	H	s-C ₄ H ₉	H	H
C-37	CH ₃	s-C ₄ H ₉	H	H
C-38	CH ₂ CH=CH ₂	s-C ₄ H ₉	H	H
C-39	CH ₂ Ph	s-C ₄ H ₉	H	H
C-40	Ph	s-C ₄ H ₉	H	H
C-41	H	t-C ₄ H ₉	H	H
C-42	CH ₃	t-C ₄ H ₉	H	H
C-43	CH ₂ CH=CH ₂	t-C ₄ H ₉	H	H
C-44	CH ₂ Ph	t-C ₄ H ₉	H	H
C-45	Ph	t-C ₄ H ₉	H	H
C-46	H	CH ₂ Ph	H	H
C-47	CH ₃	CH ₂ Ph	H	H
C-48	CH ₂ CH=CH ₂	CH ₂ Ph	H	H
C-49	CH ₂ Ph	CH ₂ Ph	H	H

Compound	R ¹	R ²	R ³	R ⁶
C-50	Ph	CH ₂ Ph	H	H
C-51	H	Ph	H	H
C-52	CH ₃	Ph	H	H
C-53	CH ₂ CH=CH ₂	Ph	H	H
C-54	CH ₂ Ph	Ph	H	H
C-55	Ph	Ph	H	H
C-56	H	CH ₂ OH	H	H
C-57	CH ₃	CH ₂ OH	H	H
C-58	CH ₂ CH=CH ₂	CH ₂ OH	H	H
C-59	CH ₂ Ph	CH ₂ OH	H	H
C-60	Ph	CH ₂ OH	H	H
C-61	H	CH(OH)CH ₃	H	H
C-62	CH ₃	CH(OH)CH ₃	H	H
C-63	CH ₂ CH=CH ₂	CH(OH)CH ₃	H	H
C-64	CH ₂ Ph	CH(OH)CH ₃	H	H
C-65	Ph	CH(OH)CH ₃	H	H
C-66	H	CH ₂ SH	H	H
C-67	CH ₃	CH ₂ SH	H	H
C-68	CH ₂ CH=CH ₂	CH ₂ SH	H	H
C-69	CH ₂ Ph	CH ₂ SH	H	H
C-70	Ph	CH ₂ SH	H	H
C-71	H	CH ₂ SCH ₂ CH ₃	H	H
C-72	CH ₃	CH ₂ SCH ₂ CH ₃	H	H
C-73	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H	H
C-74	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H	H
C-75	Ph	CH ₂ SCH ₂ CH ₃	H	H
C-76	H	CH ₂ CONH ₂	H	H
C-77	CH ₃	CH ₂ CONH ₂	H	H
C-78	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H	H
C-79	CH ₂ Ph	CH ₂ CONH ₂	H	H
C-80	Ph	CH ₂ CONH ₂	H	H
C-81	H	CH ₂ CH ₂ CONH ₂	H	H
C-82	CH ₃	CH ₂ CH ₂ CONH ₂	H	H
C-83	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	H	H
C-84	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	H	H
C-85	Ph	CH ₂ CH ₂ CONH ₂	H	H
C-86	H	CH ₃	CH ₃	H
C-87	CH ₃	CH ₃	CH ₃	H
C-88	CH ₂ CH=CH ₂	CH ₃	CH ₃	H
C-89	CH ₂ Ph	CH ₃	CH ₃	H
C-90	Ph	CH ₃	CH ₃	H
C-91	H	CH ₃ CH ₂	CH ₃	H

Compound	R ¹	R ²	R ³	R ⁶
C-92	CH ₃	CH ₃ CH ₂	CH ₃	H
C-93	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	H
C-94	CH ₂ Ph	CH ₃ CH ₂	CH ₃	H
C-95	Ph	CH ₃ CH ₂	CH ₃	H
C-96	H	n-C ₃ H ₇	CH ₃	H
C-97	CH ₃	n-C ₃ H ₇	CH ₃	H
C-98	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	H
C-99	CH ₂ Ph	n-C ₃ H ₇	CH ₃	H
C-100	Ph	n-C ₃ H ₇	CH ₃	H
C-101	H	i-C ₃ H ₇	CH ₃	H
C-102	CH ₃	i-C ₃ H ₇	CH ₃	H
C-103	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	H
C-104	CH ₂ Ph	i-C ₃ H ₇	CH ₃	H
C-105	Ph	i-C ₃ H ₇	CH ₃	H
C-106	H	n-C ₄ H ₉	CH ₃	H
C-107	CH ₃	n-C ₄ H ₉	CH ₃	H
C-108	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃	H
C-109	CH ₂ Ph	n-C ₄ H ₉	CH ₃	H
C-110	Ph	n-C ₄ H ₉	CH ₃	H
C-111	H	i-C ₄ H ₉	CH ₃	H
C-112	CH ₃	i-C ₄ H ₉	CH ₃	H
C-113	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃	H
C-114	CH ₂ Ph	i-C ₄ H ₉	CH ₃	H
C-115	Ph	i-C ₄ H ₉	CH ₃	H
C-116	H	s-C ₄ H ₉	CH ₃	H
C-117	CH ₃	s-C ₄ H ₉	CH ₃	H
C-118	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃	H
C-119	CH ₂ Ph	s-C ₄ H ₉	CH ₃	H
C-120	Ph	s-C ₄ H ₉	CH ₃	H
C-121	H	t-C ₄ H ₉	CH ₃	H
C-122	CH ₃	t-C ₄ H ₉	CH ₃	H
C-123	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃	H
C-124	CH ₂ Ph	t-C ₄ H ₉	CH ₃	H
C-125	Ph	t-C ₄ H ₉	CH ₃	H
C-126	H	CH ₂ Ph	CH ₃	H
C-127	CH ₃	CH ₂ Ph	CH ₃	H
C-128	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	H
C-129	CH ₂ Ph	CH ₂ Ph	CH ₃	H
C-130	Ph	CH ₂ Ph	CH ₃	H
C-131	H	Ph	CH ₃	H
C-132	CH ₃	Ph	CH ₃	H
C-133	CH ₂ CH=CH ₂	Ph	CH ₃	H

Compound	R ¹	R ²	R ³	R ⁵
C-134	CH ₂ Ph	Ph	CH ₃	H
C-135	Ph	Ph	CH ₃	H
C-136	H	C ₂ H ₅	C ₂ H ₅	H
C-137	CH ₃	C ₂ H ₅	C ₂ H ₅	H
C-138	CH ₂ CH=CH ₂	C ₂ H ₅	C ₂ H ₅	H
C-139	CH ₂ Ph	C ₂ H ₅	C ₂ H ₅	H
C-140	Ph	C ₂ H ₅	C ₂ H ₅	H
C-141	H	n-C ₃ H ₇	C ₂ H ₅	H
C-142	CH ₃	n-C ₃ H ₇	C ₂ H ₅	H
C-143	CH ₂ CH=CH ₂	n-C ₃ H ₇	C ₂ H ₅	H
C-144	CH ₂ Ph	n-C ₃ H ₇	C ₂ H ₅	H
C-145	Ph	n-C ₃ H ₇	C ₂ H ₅	H
C-146	H	i-C ₃ H ₇	C ₂ H ₅	H
C-147	CH ₃	i-C ₃ H ₇	C ₂ H ₅	H
C-148	CH ₂ CH=CH ₂	i-C ₃ H ₇	C ₂ H ₅	H
C-149	CH ₂ Ph	i-C ₃ H ₇	C ₂ H ₅	H
C-150	Ph	i-C ₃ H ₇	C ₂ H ₅	H
C-151	H	n-C ₄ H ₉	C ₂ H ₅	H
C-152	CH ₃	n-C ₄ H ₉	C ₂ H ₅	H
C-153	CH ₂ CH=CH ₂	n-C ₄ H ₉	C ₂ H ₅	H
C-154	CH ₂ Ph	n-C ₄ H ₉	C ₂ H ₅	H
C-155	Ph	n-C ₄ H ₉	C ₂ H ₅	H
C-156	H	i-C ₄ H ₉	C ₂ H ₅	H
C-157	CH ₃	i-C ₄ H ₉	C ₂ H ₅	H
C-158	CH ₂ CH=CH ₂	i-C ₄ H ₉	C ₂ H ₅	H
C-159	CH ₂ Ph	i-C ₄ H ₉	C ₂ H ₅	H
C-160	Ph	i-C ₄ H ₉	C ₂ H ₅	H
C-161	H	s-C ₄ H ₉	C ₂ H ₅	H
C-162	CH ₃	s-C ₄ H ₉	C ₂ H ₅	H
C-163	CH ₂ CH=CH ₂	s-C ₄ H ₉	C ₂ H ₅	H
C-164	CH ₂ Ph	s-C ₄ H ₉	C ₂ H ₅	H
C-165	Ph	s-C ₄ H ₉	C ₂ H ₅	H
C-166	H	t-C ₄ H ₉	C ₂ H ₅	H
C-167	CH ₃	t-C ₄ H ₉	C ₂ H ₅	H
C-168	CH ₂ CH=CH ₂	t-C ₄ H ₉	C ₂ H ₅	H
C-169	CH ₂ Ph	t-C ₄ H ₉	C ₂ H ₅	H
C-170	Ph	t-C ₄ H ₉	C ₂ H ₅	H
C-171	H	CH ₂ Ph	C ₂ H ₅	H
C-172	CH ₃	CH ₂ Ph	C ₂ H ₅	H
C-173	CH ₂ CH=CH ₂	CH ₂ Ph	C ₂ H ₅	H
C-174	CH ₂ Ph	CH ₂ Ph	C ₂ H ₅	H
C-175	Ph	CH ₂ Ph	C ₂ H ₅	H

Compound	R ¹	R ²	R ³	R ⁶
C-176	H	Ph	C ₂ H ₅	H
C-177	CH ₃	Ph	C ₂ H ₅	H
C-178	CH ₂ CH=CH ₂	Ph	C ₂ H ₅	H
C-179	CH ₂ Ph	Ph	C ₂ H ₅	H
C-180	Ph	Ph	C ₂ H ₅	H
C-181	H		CH ₂ CH ₂	H
C-182	CH ₃		CH ₂ CH ₂	H
C-183	CH ₂ CH=CH ₂		CH ₂ CH ₂	H
C-184	CH ₂ Ph		CH ₂ CH ₂	H
C-185	Ph		CH ₂ CH ₂	H
C-186	H		CH ₂ H ₂ CH ₂	H
C-187	CH ₃		CH ₂ H ₂ CH ₂	H
C-188	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	H
C-189	CH ₂ Ph		CH ₂ H ₂ CH ₂	H
C-190	Ph		CH ₂ H ₂ CH ₂	H
C-191	H		CH ₂ CH ₂ CH ₂ CH ₂	H
C-192	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	H
C-193	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	H
C-194	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	H
C-195	Ph		CH ₂ CH ₂ CH ₂ CH ₂	H
C-196	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
C-197	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
C-198	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
C-199	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
C-200	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	H
C-201	H	H	H	CH ₃
C-202	CH ₃	H	H	CH ₃
C-203	CH ₂ CH=CH ₂	H	H	CH ₃
C-204	CH ₂ Ph	H	H	CH ₃
C-205	Ph	H	H	CH ₃
C-206	H	CH ₃	H	CH ₃
C-207	CH ₃	CH ₃	H	CH ₃
C-208	CH ₂ CH=CH ₂	CH ₃	H	CH ₃
C-209	CH ₂ Ph	CH ₃	H	CH ₃
C-210	Ph	CH ₃	H	CH ₃
C-211	H	CH ₃ CH ₂	H	CH ₃
C-212	CH ₃	CH ₃ CH ₂	H	CH ₃
C-213	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₃
C-214	CH ₂ Ph	CH ₃ CH ₂	H	CH ₃
C-215	Ph	CH ₃ CH ₂	H	CH ₃
C-216	H	n-C ₃ H ₇	H	CH ₃
C-217	CH ₃	n-C ₃ H ₇	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
C-218	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₃
C-219	CH ₂ Ph	n-C ₃ H ₇	H	CH ₃
C-220	Ph	n-C ₃ H ₇	H	CH ₃
C-221	H	i-C ₃ H ₇	H	CH ₃
C-222	CH ₃	i-C ₃ H ₇	H	CH ₃
C-223	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₃
C-224	CH ₂ Ph	i-C ₃ H ₇	H	CH ₃
C-225	Ph	i-C ₃ H ₇	H	CH ₃
C-226	H	n-C ₄ H ₉	H	CH ₃
C-227	CH ₃	n-C ₄ H ₉	H	CH ₃
C-228	CH ₂ CH=CH ₂	n-C ₄ H ₉	H	CH ₃
C-229	CH ₂ Ph	n-C ₄ H ₉	H	CH ₃
C-230	Ph	n-C ₄ H ₉	H	CH ₃
C-231	H	i-C ₄ H ₉	H	CH ₃
C-232	CH ₃	i-C ₄ H ₉	H	CH ₃
C-233	CH ₂ CH=CH ₂	i-C ₄ H ₉	H	CH ₃
C-234	CH ₂ Ph	i-C ₄ H ₉	H	CH ₃
C-235	Ph	i-C ₄ H ₉	H	CH ₃
C-236	H	s-C ₄ H ₉	H	CH ₃
C-237	CH ₃	s-C ₄ H ₉	H	CH ₃
C-238	CH ₂ CH=CH ₂	s-C ₄ H ₉	H	CH ₃
C-239	CH ₂ Ph	s-C ₄ H ₉	H	CH ₃
C-240	Ph	s-C ₄ H ₉	H	CH ₃
C-241	H	t-C ₄ H ₉	H	CH ₃
C-242	CH ₃	t-C ₄ H ₉	H	CH ₃
C-243	CH ₂ CH=CH ₂	t-C ₄ H ₉	H	CH ₃
C-244	CH ₂ Ph	t-C ₄ H ₉	H	CH ₃
C-245	Ph	t-C ₄ H ₉	H	CH ₃
C-246	H	CH ₂ Ph	H	CH ₃
C-247	CH ₃	CH ₂ Ph	H	CH ₃
C-248	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₃
C-249	CH ₂ Ph	CH ₂ Ph	H	CH ₃
C-250	Ph	CH ₂ Ph	H	CH ₃
C-251	H	Ph	H	CH ₃
C-252	CH ₃	Ph	H	CH ₃
C-253	CH ₂ CH=CH ₂	Ph	H	CH ₃
C-254	CH ₂ Ph	Ph	H	CH ₃
C-255	Ph	Ph	H	CH ₃
C-256	H	CH ₂ OH	H	CH ₃
C-257	CH ₃	CH ₂ OH	H	CH ₃
C-258	CH ₂ CH=CH ₂	CH ₂ OH	H	CH ₃
C-259	CH ₂ Ph	CH ₂ OH	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
C-260	Ph	CH ₂ OH	H	CH ₃
C-261	H	CH(OH)CH ₃	H	CH ₃
C-262	CH ₃	CH(OH)CH ₃	H	CH ₃
C-263	CH ₂ CH=CH ₂	CH(OH)CH ₃	H	CH ₃
C-264	CH ₂ Ph	CH(OH)CH ₃	H	CH ₃
C-265	Ph	CH(OH)CH ₃	H	CH ₃
C-266	H	CH ₂ SH	H	CH ₃
C-267	CH ₃	CH ₂ SH	H	CH ₃
C-268	CH ₂ CH=CH ₂	CH ₂ SH	H	CH ₃
C-269	CH ₂ Ph	CH ₂ SH	H	CH ₃
C-270	Ph	CH ₂ SH	H	CH ₃
C-271	H	CH ₂ SCH ₂ CH ₃	H	CH ₃
C-272	CH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
C-273	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H	CH ₃
C-274	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
C-275	Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
C-276	H	CH ₂ CONH ₂	H	CH ₃
C-277	CH ₃	CH ₂ CONH ₂	H	CH ₃
C-278	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H	CH ₃
C-279	CH ₂ Ph	CH ₂ CONH ₂	H	CH ₃
C-280	Ph	CH ₂ CONH ₂	H	CH ₃
C-281	H	CH ₂ CH ₂ CONH ₂	H	CH ₃
C-282	CH ₃	CH ₂ CH ₂ CONH ₂	H	CH ₃
C-283	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	H	CH ₃
C-284	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	H	CH ₃
C-285	Ph	CH ₂ CH ₂ CONH ₂	H	CH ₃
C-286	H	CH ₃	CH ₃	CH ₃
C-287	CH ₃	CH ₃	CH ₃	CH ₃
C-288	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₃
C-289	CH ₂ Ph	CH ₃	CH ₃	CH ₃
C-290	Ph	CH ₃	CH ₃	CH ₃
C-291	H	CH ₃ CH ₂	CH ₃	CH ₃
C-292	CH ₃	CH ₃ CH ₂	CH ₃	CH ₃
C-293	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₃
C-294	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₃
C-295	Ph	CH ₃ CH ₂	CH ₃	CH ₃
C-296	H	n-C ₃ H ₇	CH ₃	CH ₃
C-297	CH ₃	n-C ₃ H ₇	CH ₃	CH ₃
C-298	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₃
C-299	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₃
C-300	Ph	n-C ₃ H ₇	CH ₃	CH ₃
C-301	H	i-C ₃ H ₇	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
C-302	CH ₃	i-C ₃ H ₇	CH ₃	CH ₃
C-303	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₃
C-304	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₃
C-305	Ph	i-C ₃ H ₇	CH ₃	CH ₃
C-306	H	n-C ₄ H ₉	CH ₃	CH ₃
C-307	CH ₃	n-C ₄ H ₉	CH ₃	CH ₃
C-308	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃	CH ₃
C-309	CH ₂ Ph	n-C ₄ H ₉	CH ₃	CH ₃
C-310	Ph	n-C ₄ H ₉	CH ₃	CH ₃
C-311	H	i-C ₄ H ₉	CH ₃	CH ₃
C-312	CH ₃	i-C ₄ H ₉	CH ₃	CH ₃
C-313	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃	CH ₃
C-314	CH ₂ Ph	i-C ₄ H ₉	CH ₃	CH ₃
C-315	Ph	i-C ₄ H ₉	CH ₃	CH ₃
C-316	H	s-C ₄ H ₉	CH ₃	CH ₃
C-317	CH ₃	s-C ₄ H ₉	CH ₃	CH ₃
C-318	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃	CH ₃
C-319	CH ₂ Ph	s-C ₄ H ₉	CH ₃	CH ₃
C-320	Ph	s-C ₄ H ₉	CH ₃	CH ₃
C-321	H	t-C ₄ H ₉	CH ₃	CH ₃
C-322	CH ₃	t-C ₄ H ₉	CH ₃	CH ₃
C-323	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃	CH ₃
C-324	CH ₂ Ph	t-C ₄ H ₉	CH ₃	CH ₃
C-325	Ph	t-C ₄ H ₉	CH ₃	CH ₃
C-326	H	CH ₂ Ph	CH ₃	CH ₃
C-327	CH ₃	CH ₂ Ph	CH ₃	CH ₃
C-328	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₃
C-329	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₃
C-330	Ph	CH ₂ Ph	CH ₃	CH ₃
C-331	H	Ph	CH ₃	CH ₃
C-332	CH ₃	Ph	CH ₃	CH ₃
C-333	CH ₂ CH=CH ₂	Ph	CH ₃	CH ₃
C-334	CH ₂ Ph	Ph	CH ₃	CH ₃
C-335	Ph	Ph	CH ₃	CH ₃
C-336	H		CH ₂ CH ₂	CH ₃
C-337	CH ₃		CH ₂ CH ₂	CH ₃
C-338	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₃
C-339	CH ₂ Ph		CH ₂ CH ₂	CH ₃
C-340	Ph		CH ₂ CH ₂	CH ₃
C-341	H		CH ₂ H ₂ CH ₂	CH ₃
C-342	CH ₃		CH ₂ H ₂ CH ₂	CH ₃
C-343	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₃

Compound	R ¹	R ²	R ³	R ⁶
C-344	CH ₂ Ph	CH ₂ H ₂ CH ₂		CH ₃
C-345	Ph	CH ₂ H ₂ CH ₂		CH ₃
C-346	H	CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-347	CH ₃	CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-348	CH ₂ CH=CH ₂	CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-349	CH ₂ Ph	CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-350	Ph	CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-351	H	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-352	CH ₃	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-353	CH ₂ CH=CH ₂	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-354	CH ₂ Ph	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-355	Ph	CH ₂ CH ₂ CH ₂ CH ₂ CH ₂		CH ₃
C-356	H	H	H	CH ₃ CH ₂
C-357	H	CH ₃	H	CH ₃ CH ₂
C-358	H	CH ₃ CH ₂	H	CH ₃ CH ₂
C-359	H	n-C ₃ H ₇	H	CH ₃ CH ₂
C-360	H	i-C ₃ H ₇	H	CH ₃ CH ₂
C-361	H	n-C ₄ H ₉	H	CH ₃ CH ₂
C-362	H	i-C ₄ H ₉	H	CH ₃ CH ₂
C-363	H	s-C ₄ H ₉	H	CH ₃ CH ₂
C-364	H	t-C ₄ H ₉	H	CH ₃ CH ₂
C-365	H	CH ₂ Ph	H	CH ₃ CH ₂
C-366	H	Ph	H	CH ₃ CH ₂
C-367	H	CH ₂ OH	H	CH ₃ CH ₂
C-368	H	CH(OH)CH ₃	H	CH ₃ CH ₂
C-369	H	CH ₂ SH	H	CH ₃ CH ₂
C-370	H	CH ₂ SCH ₂ CH ₃	H	CH ₃ CH ₂
C-371	H	CH ₂ CONH ₂	H	CH ₃ CH ₂
C-372	H	CH ₂ CH ₂ CONH ₂	H	CH ₃ CH ₂
C-373	H	CH ₃	CH ₃	CH ₃ CH ₂
C-374	H	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
C-375	H	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
C-376	H	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
C-377	H	n-C ₄ H ₉	CH ₃	CH ₃ CH ₂
C-378	H	i-C ₄ H ₉	CH ₃	CH ₃ CH ₂
C-379	H	s-C ₄ H ₉	CH ₃	CH ₃ CH ₂
C-380	H	t-C ₄ H ₉	CH ₃	CH ₃ CH ₂
C-381	H	CH ₂ Ph	CH ₃	CH ₃ CH ₂
C-382	H	Ph	CH ₃	CH ₃ CH ₂
C-383	H	CH ₂ OH	CH ₃	CH ₃ CH ₂
C-384	H	CH(OH)CH ₃	CH ₃	CH ₃ CH ₂
C-385	H	CH ₂ SH	CH ₃	CH ₃ CH ₂

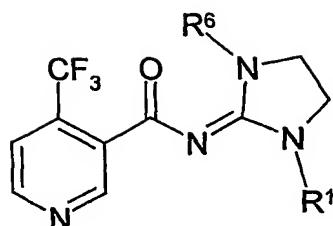
Compound	R ¹	R ²	R ³	R ⁶
C-386	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃ CH ₂
C-387	H	CH ₂ CONH ₂	CH ₃	CH ₃ CH ₂
C-388	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃ CH ₂
C-389	H	H	H	i-C ₃ H ₇
C-390	H	CH ₃	H	i-C ₃ H ₇
C-391	H	CH ₃ CH ₂	H	i-C ₃ H ₇
C-392	H	n-C ₃ H ₇	H	i-C ₃ H ₇
C-393	H	i-C ₃ H ₇	H	i-C ₃ H ₇
C-394	H	n-C ₄ H ₉	H	i-C ₃ H ₇
C-395	H	i-C ₄ H ₉	H	i-C ₃ H ₇
C-396	H	s-C ₄ H ₉	H	i-C ₃ H ₇
C-397	H	t-C ₄ H ₉	H	i-C ₃ H ₇
C-398	H	CH ₂ Ph	H	i-C ₃ H ₇
C-399	H	Ph	H	i-C ₃ H ₇
C-400	H	CH ₂ OH	H	i-C ₃ H ₇
C-401	H	CH(OH)CH ₃	H	i-C ₃ H ₇
C-402	H	CH ₂ SH	H	i-C ₃ H ₇
C-403	H	CH ₂ SCH ₂ CH ₃	H	i-C ₃ H ₇
C-404	H	CH ₂ CONH ₂	H	i-C ₃ H ₇
C-405	H	CH ₂ CH ₂ CONH ₂	H	i-C ₃ H ₇
C-406	H	CH ₃	H	i-C ₃ H ₇
C-407	H	CH ₃ CH ₂	CH ₃	i-C ₃ H ₇
C-408	H	n-C ₃ H ₇	CH ₃	i-C ₃ H ₇
C-409	H	i-C ₃ H ₇	CH ₃	i-C ₃ H ₇
C-410	H	n-C ₄ H ₉	CH ₃	i-C ₃ H ₇
C-411	H	i-C ₄ H ₉	CH ₃	i-C ₃ H ₇
C-412	H	s-C ₄ H ₉	CH ₃	i-C ₃ H ₇
C-413	H	t-C ₄ H ₉	CH ₃	i-C ₃ H ₇
C-414	H	CH ₂ Ph	CH ₃	i-C ₃ H ₇
C-415	H	Ph	CH ₃	i-C ₃ H ₇
C-416	H	CH ₂ OH	CH ₃	i-C ₃ H ₇
C-417	H	CH(OH)CH ₃	CH ₃	i-C ₃ H ₇
C-418	H	CH ₂ SH	CH ₃	i-C ₃ H ₇
C-419	H	CH ₂ SCH ₂ CH ₃	CH ₃	i-C ₃ H ₇
C-420	H	CH ₂ CONH ₂	CH ₃	i-C ₃ H ₇
C-421	H	CH ₂ CH ₂ CONH ₂	CH ₃	i-C ₃ H ₇
C-422	H	H	H	t-C ₄ H ₉
C-423	H	CH ₃	H	t-C ₄ H ₉
C-424	H	CH ₃ CH ₂	H	t-C ₄ H ₉
C-425	H	n-C ₃ H ₇	H	t-C ₄ H ₉
C-426	H	i-C ₃ H ₇	H	t-C ₄ H ₉
C-427	H	n-C ₄ H ₉	H	t-C ₄ H ₉

Compound	R ¹	R ²	R ³	R ⁶
C-428	H	i-C ₄ H ₉	H	t-C ₄ H ₉
C-429	H	s-C ₄ H ₉	H	t-C ₄ H ₉
C-430	H	t-C ₄ H ₉	H	t-C ₄ H ₉
C-431	H	CH ₂ Ph	H	t-C ₄ H ₉
C-432	H	Ph	H	t-C ₄ H ₉
C-433	H	CH ₂ OH	H	t-C ₄ H ₉
C-434	H	CH(OH)CH ₃	H	t-C ₄ H ₉
C-435	H	CH ₂ SH	H	t-C ₄ H ₉
C-436	H	CH ₂ SCH ₂ CH ₃	H	t-C ₄ H ₉
C-437	H	CH ₂ CONH ₂	H	t-C ₄ H ₉
C-438	H	CH ₂ CH ₂ CONH ₂	H	t-C ₄ H ₉
C-439	H	CH ₃	CH ₃	t-C ₄ H ₉
C-440	H	CH ₃ CH ₂	CH ₃	t-C ₄ H ₉
C-441	H	n-C ₃ H ₇	CH ₃	t-C ₄ H ₉
C-442	H	i-C ₃ H ₇	CH ₃	t-C ₄ H ₉
C-443	H	n-C ₄ H ₉	CH ₃	t-C ₄ H ₉
C-444	H	i-C ₄ H ₉	CH ₃	t-C ₄ H ₉
C-445	H	s-C ₄ H ₉	CH ₃	t-C ₄ H ₉
C-446	H	t-C ₄ H ₉	CH ₃	t-C ₄ H ₉
C-447	H	CH ₂ Ph	CH ₃	t-C ₄ H ₉
C-448	H	Ph	CH ₃	t-C ₄ H ₉
C-449	H	CH ₂ OH	CH ₃	t-C ₄ H ₉
C-450	H	CH(OH)CH ₃	CH ₃	t-C ₄ H ₉
C-451	H	CH ₂ SH	CH ₃	t-C ₄ H ₉
C-452	H	CH ₂ SCH ₂ CH ₃	CH ₃	t-C ₄ H ₉
C-453	H	CH ₂ CONH ₂	CH ₃	t-C ₄ H ₉
C-454	H	CH ₂ CH ₂ CONH ₂	CH ₃	t-C ₄ H ₉
C-455	H	H	H	CH ₂ CH=CH ₂
C-456	H	CH ₃	H	CH ₂ CH=CH ₂
C-457	H	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
C-458	H	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
C-459	H	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
C-460	H	n-C ₄ H ₉	H	CH ₂ CH=CH ₂
C-461	H	i-C ₄ H ₉	H	CH ₂ CH=CH ₂
C-462	H	s-C ₄ H ₉	H	CH ₂ CH=CH ₂
C-463	H	t-C ₄ H ₉	H	CH ₂ CH=CH ₂
C-464	H	CH ₂ Ph	H	CH ₂ CH=CH ₂
C-465	H	Ph	H	CH ₂ CH=CH ₂
C-466	H	CH ₂ OH	H	CH ₂ CH=CH ₂
C-467	H	CH(OH)CH ₃	H	CH ₂ CH=CH ₂
C-468	H	CH ₂ SH	H	CH ₂ CH=CH ₂
C-469	H	CH ₂ SCH ₂ CH ₃	H	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R ⁶
C-470	H	CH ₂ CONH ₂	H	CH ₂ CH=CH ₂
C-471	H	CH ₂ CH ₂ CONH ₂	H	CH ₂ CH=CH ₂
C-472	H	CH ₃	CH ₃	CH ₂ CH=CH ₂
C-473	H	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
C-474	H	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
C-475	H	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
C-476	H	n-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
C-477	H	i-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
C-478	H	s-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
C-479	H	t-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
C-480	H	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
C-481	H	Ph	CH ₃	CH ₂ CH=CH ₂
C-482	H	CH ₂ OH	CH ₃	CH ₂ CH=CH ₂
C-483	H	CH(OH)CH ₃	CH ₃	CH ₂ CH=CH ₂
C-484	H	CH ₂ SH	CH ₃	CH ₂ CH=CH ₂
C-485	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₂ CH=CH ₂
C-486	H	CH ₂ CONH ₂	CH ₃	CH ₂ CH=CH ₂
C-487	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₂ CH=CH ₂
C-488	H	H	H	CH ₂ Ph
C-489	H	CH ₃	H	CH ₂ Ph
C-490	H	CH ₃ CH ₂	H	CH ₂ Ph
C-491	H	n-C ₃ H ₇	H	CH ₂ Ph
C-492	H	i-C ₃ H ₇	H	CH ₂ Ph
C-493	H	n-C ₄ H ₉	H	CH ₂ Ph
C-494	H	i-C ₄ H ₉	H	CH ₂ Ph
C-495	H	s-C ₄ H ₉	H	CH ₂ Ph
C-496	H	t-C ₄ H ₉	H	CH ₂ Ph
C-497	H	CH ₂ Ph	H	CH ₂ Ph
C-498	H	Ph	H	CH ₂ Ph
C-499	H	CH ₂ OH	H	CH ₂ Ph
C-500	H	CH(OH)CH ₃	H	CH ₂ Ph
C-501	H	CH ₂ SH	H	CH ₂ Ph
C-502	H	CH ₂ SCH ₂ CH ₃	H	CH ₂ Ph
C-503	H	CH ₂ CONH ₂	H	CH ₂ Ph
C-504	H	CH ₂ CH ₂ CONH ₂	H	CH ₂ Ph
C-505	H	CH ₃	CH ₃	CH ₂ Ph
C-506	H	CH ₃ CH ₂	CH ₃	CH ₂ Ph
C-507	H	n-C ₃ H ₇	CH ₃	CH ₂ Ph
C-508	H	i-C ₃ H ₇	CH ₃	CH ₂ Ph
C-509	H	n-C ₄ H ₉	CH ₃	CH ₂ Ph
C-510	H	i-C ₄ H ₉	CH ₃	CH ₂ Ph
C-511	H	s-C ₄ H ₉	CH ₃	CH ₂ Ph

Compound	R ¹	R ²	R ³	R ⁶
C-512	H	t-C ₄ H ₉	CH ₃	CH ₂ Ph
C-513	H	CH ₂ Ph	CH ₃	CH ₂ Ph
C-514	H	Ph	CH ₃	CH ₂ Ph
C-515	H	CH ₂ OH	CH ₃	CH ₂ Ph
C-516	H	CH(OH)CH ₃	CH ₃	CH ₂ Ph
C-517	H	CH ₂ SH	CH ₃	CH ₂ Ph
C-518	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₂ Ph
C-519	H	CH ₂ CONH ₂	CH ₃	CH ₂ Ph
C-520	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₂ Ph
C-521	H	H	H	CH ₂ (Ph-2-Cl)
C-522	H	H	H	CH ₂ (Ph-3-Cl)
C-523	H	H	H	CH ₂ (Ph-4-Cl)
C-524	H	CH ₃	H	CH ₂ (Ph-2-Cl)
C-525	H	CH ₃	H	CH ₂ (Ph-3-Cl)
C-526	H	CH ₃	H	CH ₂ (Ph-4-Cl)
C-527	H	CH ₃	CH ₃	CH ₂ (Ph-2-Cl)
C-528	H	CH ₃	CH ₃	CH ₂ (Ph-3-Cl)
C-529	H	CH ₃	CH ₃	CH ₂ (Ph-4-Cl)
C-530	H	H	H	Ph
C-531	H	CH ₃	H	Ph
C-532	H	CH ₃	CH ₃	Ph
C-533	H	H	H	2-CH ₃ -4-C ₃ F ₇ -Ph
C-534	H	CH ₃	H	2-CH ₃ -4-C ₃ F ₇ -Ph
C-535	H	CH ₃	CH ₃	2-CH ₃ -4-C ₃ F ₇ -Ph
C-536	H	H	H	CH ₂ CO ₂ CH ₃
C-537	H	CH ₃	H	CH ₂ CO ₂ CH ₃
C-538	H	CH ₃	CH ₃	CH ₂ CO ₂ CH ₃
C-539	H	H	H	C(CH ₃) ₂ CO ₂ CH ₂ Ph
C-540	H	CH ₃	H	C(CH ₃) ₂ CO ₂ CH ₂ Ph
C-541	H	CH ₃	CH ₃	C(CH ₃) ₂ CO ₂ CH ₂ Ph

Table 4 of formula (Id):



(Id)

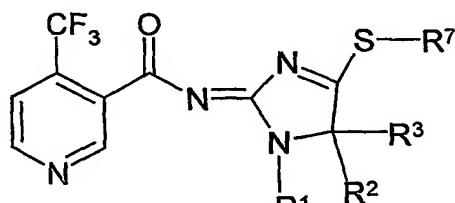
Compound	R ¹	R ⁶
D-1	H	H
D-2	CH ₃	H
D-3	CH ₃ CH ₂	H
D-4	n-C ₃ H ₇	H
D-5	i-C ₃ H ₇	H
D-6	n-C ₄ H ₉	H
D-7	i-C ₄ H ₉	H
D-8	s-C ₄ H ₉	H
D-9	t-C ₄ H ₉	H
D-10	CH ₂ CH=CH ₂	H
D-11	CH ₂ Ph	H
D-12	CH ₂ (2-chloropyridyl-5-yl)	H
D-13	CH ₂ (2-chlorothiazole-5-yl)	H
D-14	Ph	H
D-15	2-CH ₃ -4-C ₃ F ₇ -Ph	H
D-16	CH ₃	CH ₃
D-17	CH ₃ CH ₂	CH ₃
D-18	n-C ₃ H ₇	CH ₃
D-19	i-C ₃ H ₇	CH ₃
D-20	n-C ₄ H ₉	CH ₃
D-21	i-C ₄ H ₉	CH ₃
D-22	s-C ₄ H ₉	CH ₃
D-23	t-C ₄ H ₉	CH ₃
D-24	CH ₂ CH=CH ₂	CH ₃
D-25	CH ₂ Ph	CH ₃
D-26	CH ₂ (2-chloropyridyl-5-yl)	CH ₃
D-27	CH ₂ (2-chlorothiazole-5-yl)	CH ₃
D-28	Ph	CH ₃
D-29	2-CH ₃ -4-C ₃ F ₇ -Ph	CH ₃
D-30	CH ₃	C ₂ H ₅
D-31	CH ₃ CH ₂	C ₂ H ₅
D-32	n-C ₃ H ₇	C ₂ H ₅
D-33	i-C ₃ H ₇	C ₂ H ₅

Compound	R ¹	R ⁶
D-34	n-C ₄ H ₉	C ₂ H ₅
D-35	i-C ₄ H ₉	C ₂ H ₅
D-36	s-C ₄ H ₉	C ₂ H ₅
D-37	t-C ₄ H ₉	C ₂ H ₅
D-38	CH ₂ CH=CH ₂	C ₂ H ₅
D-39	CH ₂ Ph	C ₂ H ₅
D-40	CH ₂ (2-chloropyridyl-5-yl)	C ₂ H ₅
D-41	CH ₂ (2-chlorothiazole-5-yl)	C ₂ H ₅
D-42	Ph	C ₂ H ₅
D-43	2-CH ₃ -4-C ₃ F ₇ -Ph	C ₂ H ₅
D-44	CH ₃	CH ₂ CH=CH ₂
D-45	CH ₃ CH ₂	CH ₂ CH=CH ₂
D-46	n-C ₃ H ₇	CH ₂ CH=CH ₂
D-47	i-C ₃ H ₇	CH ₂ CH=CH ₂
D-48	n-C ₄ H ₉	CH ₂ CH=CH ₂
D-49	i-C ₄ H ₉	CH ₂ CH=CH ₂
D-50	s-C ₄ H ₉	CH ₂ CH=CH ₂
D-51	t-C ₄ H ₉	CH ₂ CH=CH ₂
D-52	CH ₂ CH=CH ₂	CH ₂ CH=CH ₂
D-53	CH ₂ Ph	CH ₂ CH=CH ₂
D-54	CH ₂ (2-chloropyridyl-5-yl)	CH ₂ CH=CH ₂
D-55	CH ₂ (2-chlorothiazole-5-yl)	CH ₂ CH=CH ₂
D-56	Ph	CH ₂ CH=CH ₂
D-57	2-CH ₃ -4-C ₃ F ₇ -Ph	CH ₂ CH=CH ₂
D-58	CH ₃	CH ₂ Ph
D-59	CH ₃ CH ₂	CH ₂ Ph
D-60	n-C ₃ H ₇	CH ₂ Ph
D-61	i-C ₃ H ₇	CH ₂ Ph
D-62	n-C ₄ H ₉	CH ₂ Ph
D-63	i-C ₄ H ₉	CH ₂ Ph
D-64	s-C ₄ H ₉	CH ₂ Ph
D-65	t-C ₄ H ₉	CH ₂ Ph
D-66	CH ₂ CH=CH ₂	CH ₂ Ph
D-67	CH ₂ Ph	CH ₂ Ph
D-68	CH ₂ (2-chloropyridyl-5-yl)	CH ₂ Ph
D-69	CH ₂ (2-chlorothiazole-5-yl)	CH ₂ Ph
D-70	Ph	CH ₂ Ph
D-71	2-CH ₃ -4-C ₃ F ₇ -Ph	CH ₂ Ph
D-72	CH ₃	Ph
D-73	CH ₃ CH ₂	Ph
D-74	n-C ₃ H ₇	Ph
D-75	i-C ₃ H ₇	Ph

Compound	R ¹	R ⁶
D-76	n-C ₄ H ₉	Ph
D-77	i-C ₄ H ₉	Ph
D-78	s-C ₄ H ₉	Ph
D-79	t-C ₄ H ₉	Ph
D-80	CH ₂ CH=CH ₂	Ph
D-81	CH ₂ Ph	Ph
D-82	CH ₂ (2-chloropyridyl-5-yl)	Ph
D-83	CH ₂ (2-chlorothiazole-5-yl)	Ph
D-84	Ph	Ph

Table 5

Compounds of formula (Ie):



5

(Ie)

Compound	R ¹	R ²	R ³	R ⁷
E-1	H	H	H	CH ₃
E-2	CH ₃	H	H	CH ₃
E-3	CH ₂ CH ₃	H	H	CH ₃
E-4	CH ₂ CH=CH ₂	H	H	CH ₃
E-5	CH ₂ Ph	H	H	CH ₃
E-6	Ph	H	H	CH ₃
E-7	COCH ₃	H	H	CH ₃
E-8	COPh	H	H	CH ₃
E-9	H	CH ₃	H	CH ₃
E-10	CH ₃	CH ₃	H	CH ₃
E-11	CH ₂ CH ₃	CH ₃	H	CH ₃
E-12	CH ₂ CH=CH ₂	CH ₃	H	CH ₃
E-13	CH ₂ Ph	CH ₃	H	CH ₃
E-14	Ph	CH ₃	H	CH ₃
E-15	COCH ₃	CH ₃	H	CH ₃
E-16	COPh	CH ₃	H	CH ₃
E-17	H	CH ₃ CH ₂	H	CH ₃
E-18	CH ₃	CH ₃ CH ₂	H	CH ₃
E-19	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-20	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₃
E-21	CH ₂ Ph	CH ₃ CH ₂	H	CH ₃
E-22	Ph	CH ₃ CH ₂	H	CH ₃
E-23	COCH ₃	CH ₃ CH ₂	H	CH ₃
E-24	COPh	CH ₃ CH ₂	H	CH ₃
E-25	H	n-C ₃ H ₇	H	CH ₃
E-26	CH ₃	n-C ₃ H ₇	H	CH ₃
E-27	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₃
E-28	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₃
E-29	CH ₂ Ph	n-C ₃ H ₇	H	CH ₃
E-30	Ph	n-C ₃ H ₇	H	CH ₃
E-31	COCH ₃	n-C ₃ H ₇	H	CH ₃
E-32	COPh	n-C ₃ H ₇	H	CH ₃
E-33	H	i-C ₃ H ₇	H	CH ₃
E-34	CH ₃	i-C ₃ H ₇	H	CH ₃
E-35	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₃
E-36	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₃
E-37	CH ₂ Ph	i-C ₃ H ₇	H	CH ₃
E-38	Ph	i-C ₃ H ₇	H	CH ₃
E-39	COCH ₃	i-C ₃ H ₇	H	CH ₃
E-40	COPh	i-C ₃ H ₇	H	CH ₃
E-41	H	n-C ₄ H ₉	H	CH ₃
E-42	CH ₃	n-C ₄ H ₉	H	CH ₃
E-43	CH ₂ CH ₃	n-C ₄ H ₉	H	CH ₃
E-44	CH ₂ CH=CH ₂	n-C ₄ H ₉	H	CH ₃
E-45	CH ₂ Ph	n-C ₄ H ₉	H	CH ₃
E-46	Ph	n-C ₄ H ₉	H	CH ₃
E-47	COCH ₃	n-C ₄ H ₉	H	CH ₃
E-48	COPh	n-C ₄ H ₉	H	CH ₃
E-49	H	i-C ₄ H ₉	H	CH ₃
E-50	CH ₃	i-C ₄ H ₉	H	CH ₃
E-51	CH ₂ CH ₃	i-C ₄ H ₉	H	CH ₃
E-52	CH ₂ CH=CH ₂	i-C ₄ H ₉	H	CH ₃
E-53	CH ₂ Ph	i-C ₄ H ₉	H	CH ₃
E-54	Ph	i-C ₄ H ₉	H	CH ₃
E-55	COCH ₃	i-C ₄ H ₉	H	CH ₃
E-56	COPh	i-C ₄ H ₉	H	CH ₃
E-57	H	s-C ₄ H ₉	H	CH ₃
E-58	CH ₃	s-C ₄ H ₉	H	CH ₃
E-59	CH ₂ CH ₃	s-C ₄ H ₉	H	CH ₃
E-60	CH ₂ CH=CH ₂	s-C ₄ H ₉	H	CH ₃
E-61	CH ₂ Ph	s-C ₄ H ₉	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-62	Ph	s-C ₄ H ₉	H	CH ₃
E-63	COCH ₃	s-C ₄ H ₉	H	CH ₃
E-64	COPh	s-C ₄ H ₉	H	CH ₃
E-65	H	t-C ₄ H ₉	H	CH ₃
E-66	CH ₃	t-C ₄ H ₉	H	CH ₃
E-67	CH ₂ CH ₃	t-C ₄ H ₉	H	CH ₃
E-68	CH ₂ CH=CH ₂	t-C ₄ H ₉	H	CH ₃
E-69	CH ₂ Ph	t-C ₄ H ₉	H	CH ₃
E-70	Ph	t-C ₄ H ₉	H	CH ₃
E-71	COCH ₃	t-C ₄ H ₉	H	CH ₃
E-72	COPh	t-C ₄ H ₉	H	CH ₃
E-73	H	CH ₂ Ph	H	CH ₃
E-74	CH ₃	CH ₂ Ph	H	CH ₃
E-75	CH ₂ CH ₃	CH ₂ Ph	H	CH ₃
E-76	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₃
E-77	CH ₂ Ph	CH ₂ Ph	H	CH ₃
E-78	Ph	CH ₂ Ph	H	CH ₃
E-79	COCH ₃	CH ₂ Ph	H	CH ₃
E-80	COPh	CH ₂ Ph	H	CH ₃
E-81	H	Ph	H	CH ₃
E-82	CH ₃	Ph	H	CH ₃
E-83	CH ₂ CH ₃	Ph	H	CH ₃
E-84	CH ₂ CH=CH ₂	Ph	H	CH ₃
E-85	CH ₂ Ph	Ph	H	CH ₃
E-86	Ph	Ph	H	CH ₃
E-87	COCH ₃	Ph	H	CH ₃
E-88	COPh	Ph	H	CH ₃
E-89	H	CH ₂ OH	H	CH ₃
E-90	CH ₃	CH ₂ OH	H	CH ₃
E-91	CH ₂ CH ₃	CH ₂ OH	H	CH ₃
E-92	CH ₂ CH=CH ₂	CH ₂ OH	H	CH ₃
E-93	CH ₂ Ph	CH ₂ OH	H	CH ₃
E-94	Ph	CH ₂ OH	H	CH ₃
E-95	COCH ₃	CH ₂ OH	H	CH ₃
E-96	COPh	CH ₂ OH	H	CH ₃
E-97	H	CH(OH)CH ₃	H	CH ₃
E-98	CH ₃	CH(OH)CH ₃	H	CH ₃
E-99	CH ₂ CH ₃	CH(OH)CH ₃	H	CH ₃
E-100	CH ₂ CH=CH ₂	CH(OH)CH ₃	H	CH ₃
E-101	CH ₂ Ph	CH(OH)CH ₃	H	CH ₃
E-102	Ph	CH(OH)CH ₃	H	CH ₃
E-103	COCH ₃	CH(OH)CH ₃	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-104	COPh	CH(OH)CH ₃	H	CH ₃
E-105	H	CH ₂ SH	H	CH ₃
E-106	CH ₃	CH ₂ SH	H	CH ₃
E-107	CH ₂ CH ₃	CH ₂ SH	H	CH ₃
E-108	CH ₂ CH=CH ₂	CH ₂ SH	H	CH ₃
E-109	CH ₂ Ph	CH ₂ SH	H	CH ₃
E-110	Ph	CH ₂ SH	H	CH ₃
E-111	COCH ₃	CH ₂ SH	H	CH ₃
E-112	COPh	CH ₂ SH	H	CH ₃
E-113	H	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-114	CH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-115	CH ₂ CH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-116	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-117	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-118	Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-119	COCH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-120	COPh	CH ₂ SCH ₂ CH ₃	H	CH ₃
E-121	H	CH ₂ CONH ₂	H	CH ₃
E-122	CH ₃	CH ₂ CONH ₂	H	CH ₃
E-123	CH ₂ CH ₃	CH ₂ CONH ₂	H	CH ₃
E-124	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H	CH ₃
E-125	CH ₂ Ph	CH ₂ CONH ₂	H	CH ₃
E-126	Ph	CH ₂ CONH ₂	H	CH ₃
E-127	COCH ₃	CH ₂ CONH ₂	H	CH ₃
E-128	COPh	CH ₂ CONH ₂	H	CH ₃
E-129	H	CH ₃	CH ₃	CH ₃
E-130	CH ₃	CH ₃	CH ₃	CH ₃
E-131	CH ₂ CH ₃	CH ₃	CH ₃	CH ₃
E-132	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₃
E-133	CH ₂ Ph	CH ₃	CH ₃	CH ₃
E-134	Ph	CH ₃	CH ₃	CH ₃
E-135	COCH ₃	CH ₃	CH ₃	CH ₃
E-136	COPh	CH ₃	CH ₃	CH ₃
E-137	H	CH ₃ CH ₂	CH ₃	CH ₃
E-138	CH ₃	CH ₃ CH ₂	CH ₃	CH ₃
E-139	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₃
E-140	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₃
E-141	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₃
E-142	Ph	CH ₃ CH ₂	CH ₃	CH ₃
E-143	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₃
E-144	COPh	CH ₃ CH ₂	CH ₃	CH ₃
E-145	H	n-C ₃ H ₇	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-146	CH ₃	n-C ₃ H ₇	CH ₃	CH ₃
E-147	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₃
E-148	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₃
E-149	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₃
E-150	Ph	n-C ₃ H ₇	CH ₃	CH ₃
E-151	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₃
E-152	COPh	n-C ₃ H ₇	CH ₃	CH ₃
E-153	H	i-C ₃ H ₇	CH ₃	CH ₃
E-154	CH ₃	i-C ₃ H ₇	CH ₃	CH ₃
E-155	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₃
E-156	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₃
E-157	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₃
E-158	Ph	i-C ₃ H ₇	CH ₃	CH ₃
E-159	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₃
E-160	COPh	i-C ₃ H ₇	CH ₃	CH ₃
E-161	H	n-C ₄ H ₉	CH ₃	CH ₃
E-162	CH ₃	n-C ₄ H ₉	CH ₃	CH ₃
E-163	CH ₂ CH ₃	n-C ₄ H ₉	CH ₃	CH ₃
E-164	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃	CH ₃
E-165	CH ₂ Ph	n-C ₄ H ₉	CH ₃	CH ₃
E-166	Ph	n-C ₄ H ₉	CH ₃	CH ₃
E-167	COCH ₃	n-C ₄ H ₉	CH ₃	CH ₃
E-168	COPh	n-C ₄ H ₉	CH ₃	CH ₃
E-169	H	i-C ₄ H ₉	CH ₃	CH ₃
E-170	CH ₃	i-C ₄ H ₉	CH ₃	CH ₃
E-171	CH ₂ CH ₃	i-C ₄ H ₉	CH ₃	CH ₃
E-172	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃	CH ₃
E-173	CH ₂ Ph	i-C ₄ H ₉	CH ₃	CH ₃
E-174	Ph	i-C ₄ H ₉	CH ₃	CH ₃
E-175	COCH ₃	i-C ₄ H ₉	CH ₃	CH ₃
E-176	COPh	i-C ₄ H ₉	CH ₃	CH ₃
E-177	H	s-C ₄ H ₉	CH ₃	CH ₃
E-178	CH ₃	s-C ₄ H ₉	CH ₃	CH ₃
E-179	CH ₂ CH ₃	s-C ₄ H ₉	CH ₃	CH ₃
E-180	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃	CH ₃
E-181	CH ₂ Ph	s-C ₄ H ₉	CH ₃	CH ₃
E-182	Ph	s-C ₄ H ₉	CH ₃	CH ₃
E-183	COCH ₃	s-C ₄ H ₉	CH ₃	CH ₃
E-184	COPh	s-C ₄ H ₉	CH ₃	CH ₃
E-185	H	t-C ₄ H ₉	CH ₃	CH ₃
E-186	CH ₃	t-C ₄ H ₉	CH ₃	CH ₃
E-187	CH ₂ CH ₃	t-C ₄ H ₉	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-188	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃	CH ₃
E-189	CH ₂ Ph	t-C ₄ H ₉	CH ₃	CH ₃
E-190	Ph	t-C ₄ H ₉	CH ₃	CH ₃
E-191	COCH ₃	t-C ₄ H ₉	CH ₃	CH ₃
E-192	COPh	t-C ₄ H ₉	CH ₃	CH ₃
E-193	H	CH ₂ Ph	CH ₃	CH ₃
E-194	CH ₃	CH ₂ Ph	CH ₃	CH ₃
E-195	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₃
E-196	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₃
E-197	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₃
E-198	Ph	CH ₂ Ph	CH ₃	CH ₃
E-199	COCH ₃	CH ₂ Ph	CH ₃	CH ₃
E-200	COPh	CH ₂ Ph	CH ₃	CH ₃
E-201	H	Ph	CH ₃	CH ₃
E-202	CH ₃	Ph	CH ₃	CH ₃
E-203	CH ₂ CH ₃	Ph	CH ₃	CH ₃
E-204	CH ₂ CH=CH ₂	Ph	CH ₃	CH ₃
E-205	CH ₂ Ph	Ph	CH ₃	CH ₃
E-206	Ph	Ph	CH ₃	CH ₃
E-207	COCH ₃	Ph	CH ₃	CH ₃
E-208	COPh	Ph	CH ₃	CH ₃
E-209	H	CH ₂ OH	CH ₃	CH ₃
E-210	CH ₃	CH ₂ OH	CH ₃	CH ₃
E-211	CH ₂ CH ₃	CH ₂ OH	CH ₃	CH ₃
E-212	CH ₂ CH=CH ₂	CH ₂ OH	CH ₃	CH ₃
E-213	CH ₂ Ph	CH ₂ OH	CH ₃	CH ₃
E-214	Ph	CH ₂ OH	CH ₃	CH ₃
E-215	COCH ₃	CH ₂ OH	CH ₃	CH ₃
E-216	COPh	CH ₂ OH	CH ₃	CH ₃
E-217	H	CH(OH)CH ₃	CH ₃	CH ₃
E-218	CH ₃	CH(OH)CH ₃	CH ₃	CH ₃
E-219	CH ₂ CH ₃	CH(OH)CH ₃	CH ₃	CH ₃
E-220	CH ₂ CH=CH ₂	CH(OH)CH ₃	CH ₃	CH ₃
E-221	CH ₂ Ph	CH(OH)CH ₃	CH ₃	CH ₃
E-222	Ph	CH(OH)CH ₃	CH ₃	CH ₃
E-223	COCH ₃	CH(OH)CH ₃	CH ₃	CH ₃
E-224	COPh	CH(OH)CH ₃	CH ₃	CH ₃
E-225	H	CH ₂ SH	CH ₃	CH ₃
E-226	CH ₃	CH ₂ SH	CH ₃	CH ₃
E-227	CH ₂ CH ₃	CH ₂ SH	CH ₃	CH ₃
E-228	CH ₂ CH=CH ₂	CH ₂ SH	CH ₃	CH ₃
E-229	CH ₂ Ph	CH ₂ SH	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-230	Ph	CH ₂ SH	CH ₃	CH ₃
E-231	COCH ₃	CH ₂ SH	CH ₃	CH ₃
E-232	COPh	CH ₂ SH	CH ₃	CH ₃
E-233	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-234	CH ₃	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-235	CH ₂ CH ₃	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-236	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-237	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-238	Ph	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-239	COCH ₃	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-240	COPh	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
E-241	H	CH ₂ CONH ₂	CH ₃	CH ₃
E-242	CH ₃	CH ₂ CONH ₂	CH ₃	CH ₃
E-243	CH ₂ CH ₃	CH ₂ CONH ₂	CH ₃	CH ₃
E-244	CH ₂ CH=CH ₂	CH ₂ CONH ₂	CH ₃	CH ₃
E-245	CH ₂ Ph	CH ₂ CONH ₂	CH ₃	CH ₃
E-246	Ph	CH ₂ CONH ₂	CH ₃	CH ₃
E-247	COCH ₃	CH ₂ CONH ₂	CH ₃	CH ₃
E-248	COPh	CH ₂ CONH ₂	CH ₃	CH ₃
E-249	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-250	CH ₃	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-251	CH ₂ CH ₃	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-252	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-253	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-254	Ph	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-255	COCH ₃	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-256	COPh	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
E-257	CH ₃	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-258	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-259	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-260	CH ₂ Ph	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-261	Ph	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-262	COCH ₃	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-263	COPh	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
E-264	H	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-265	CH ₃	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-266	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-267	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-268	CH ₂ Ph	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-269	Ph	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-270	COCH ₃	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-271	COPh	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-272	H	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-273	CH ₃	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-274	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-275	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-276	CH ₂ Ph	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-277	Ph	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-278	COCH ₃	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-279	COPh	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
E-280	H	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-281	CH ₃	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-282	CH ₂ CH ₃	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-283	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-284	CH ₂ Ph	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-285	Ph	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-286	COCH ₃	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-287	COPh	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-288	H	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-289	CH ₃	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-290	CH ₂ CH ₃	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-291	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-292	CH ₂ Ph	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-293	Ph	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-294	COCH ₃	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-295	COPh	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
E-296	H	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-297	CH ₃	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-298	CH ₂ CH ₃	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-299	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-300	CH ₂ Ph	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-301	Ph	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-302	COCH ₃	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-303	COPh	CH ₂ Ph	CH ₃ CH ₂	CH ₃
E-304	H		CH ₂ CH ₂	CH ₃
E-305	CH ₃		CH ₂ CH ₂	CH ₃
E-306	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₃
E-307	CH ₂ Ph		CH ₂ CH ₂	CH ₃
E-308	Ph		CH ₂ CH ₂	CH ₃
E-309	COCH ₃		CH ₂ CH ₂	CH ₃
E-310	COPh		CH ₂ CH ₂	CH ₃
E-311	H		CH ₂ H ₂ CH ₂	CH ₃
E-312	CH ₃		CH ₂ H ₂ CH ₂	CH ₃
E-313	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
E-314	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₃
E-315	Ph		CH ₂ H ₂ CH ₂	CH ₃
E-316	COCH ₃		CH ₂ H ₂ CH ₂	CH ₃
E-317	COPh		CH ₂ H ₂ CH ₂	CH ₃
E-318	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-319	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-320	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-321	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-322	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-323	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-324	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-325	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-326	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-327	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-328	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-329	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-330	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-331	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
E-332	H	H	H	CH ₃ CH ₂
E-333	CH ₃	H	H	CH ₃ CH ₂
E-334	CH ₂ CH ₃	H	H	CH ₃ CH ₂
E-335	CH ₂ CH=CH ₂	H	H	CH ₃ CH ₂
E-336	CH ₂ Ph	H	H	CH ₃ CH ₂
E-337	Ph	H	H	CH ₃ CH ₂
E-338	COCH ₃	H	H	CH ₃ CH ₂
E-339	COPh	H	H	CH ₃ CH ₂
E-340	H	CH ₃	H	CH ₃ CH ₂
E-341	CH ₃	CH ₃	H	CH ₃ CH ₂
E-342	CH ₂ CH ₃	CH ₃	H	CH ₃ CH ₂
E-343	CH ₂ CH=CH ₂	CH ₃	H	CH ₃ CH ₂
E-344	CH ₂ Ph	CH ₃	H	CH ₃ CH ₂
E-345	Ph	CH ₃	H	CH ₃ CH ₂
E-346	COCH ₃	CH ₃	H	CH ₃ CH ₂
E-347	COPh	CH ₃	H	CH ₃ CH ₂
E-348	H	CH ₃ CH ₂	H	CH ₃ CH ₂
E-349	CH ₃	CH ₃ CH ₂	H	CH ₃ CH ₂
E-350	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₃ CH ₂
E-351	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₃ CH ₂
E-352	CH ₂ Ph	CH ₃ CH ₂	H	CH ₃ CH ₂
E-353	Ph	CH ₃ CH ₂	H	CH ₃ CH ₂
E-354	COCH ₃	CH ₃ CH ₂	H	CH ₃ CH ₂
E-355	COPh	n-C ₃ H ₇	H	CH ₃ CH ₂

Compound	R ¹	R ²	R ³	R ⁷
E-356	H	n-C ₃ H ₇	H	CH ₃ CH ₂
E-357	CH ₃	n-C ₃ H ₇	H	CH ₃ CH ₂
E-358	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₃ CH ₂
E-359	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₃ CH ₂
E-360	CH ₂ Ph	n-C ₃ H ₇	H	CH ₃ CH ₂
E-361	Ph	n-C ₃ H ₇	H	CH ₃ CH ₂
E-362	COCH ₃	n-C ₃ H ₇	H	CH ₃ CH ₂
E-363	COPh	n-C ₄ H ₉	H	CH ₃ CH ₂
E-364	H	i-C ₃ H ₇	H	CH ₃ CH ₂
E-365	CH ₃	i-C ₃ H ₇	H	CH ₃ CH ₂
E-366	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₃ CH ₂
E-367	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₃ CH ₂
E-368	CH ₂ Ph	i-C ₃ H ₇	H	CH ₃ CH ₂
E-369	Ph	i-C ₃ H ₇	H	CH ₃ CH ₂
E-370	COCH ₃	i-C ₃ H ₇	H	CH ₃ CH ₂
E-371	COPh	i-C ₃ H ₇	H	CH ₃ CH ₂
E-372	H	CH ₂ Ph	H	CH ₃ CH ₂
E-373	CH ₃	CH ₂ Ph	H	CH ₃ CH ₂
E-374	CH ₂ CH ₃	CH ₂ Ph	H	CH ₃ CH ₂
E-375	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₃ CH ₂
E-376	CH ₂ Ph	CH ₂ Ph	H	CH ₃ CH ₂
E-377	Ph	CH ₂ Ph	H	CH ₃ CH ₂
E-378	COCH ₃	CH ₂ Ph	H	CH ₃ CH ₂
E-379	COPh	CH ₂ Ph	H	CH ₃ CH ₂
E-380	H	CH ₃	CH ₃	CH ₃ CH ₂
E-381	CH ₃	CH ₃	CH ₃	CH ₃ CH ₂
E-382	CH ₂ CH ₃	CH ₃	CH ₃	CH ₃ CH ₂
E-383	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₃ CH ₂
E-384	CH ₂ Ph	CH ₃	CH ₃	CH ₃ CH ₂
E-385	Ph	CH ₃	CH ₃	CH ₃ CH ₂
E-386	COCH ₃	CH ₃	CH ₃	CH ₃ CH ₂
E-387	COPh	CH ₃	CH ₃	CH ₃ CH ₂
E-388	H	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-389	CH ₃	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-390	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-391	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-392	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-393	Ph	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-394	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
E-395	COPh	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-396	H	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-397	CH ₃	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂

Compound	R ¹	R ²	R ³	R ⁷
E-398	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-399	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-400	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-401	Ph	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-402	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-403	COPh	n-C ₄ H ₉	CH ₃	CH ₃ CH ₂
E-404	H	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-405	CH ₃	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-406	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-407	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-408	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-409	Ph	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-410	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-411	COPh	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
E-412	H	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-413	CH ₃	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-414	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-415	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-416	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-417	Ph	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-418	COCH ₃	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-419	COPh	CH ₂ Ph	CH ₃	CH ₃ CH ₂
E-420	H		CH ₂ CH ₂	CH ₂ CH ₂
E-421	CH ₃		CH ₂ CH ₂	CH ₂ CH ₂
E-422	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₂ CH ₂
E-423	CH ₂ Ph		CH ₂ CH ₂	CH ₂ CH ₂
E-424	Ph		CH ₂ CH ₂	CH ₂ CH ₂
E-425	COCH ₃		CH ₂ CH ₂	CH ₂ CH ₂
E-426	COPh		CH ₂ CH ₂	CH ₂ CH ₂
E-427	H		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-428	CH ₃		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-429	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-430	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-431	Ph		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-432	COCH ₃		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-433	COPh		CH ₂ H ₂ CH ₂	CH ₂ CH ₂
E-434	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-435	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-436	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-437	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-438	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-439	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂

Compound	R ¹	R ²	R ³	R'
E-440	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-441	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-442	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-443	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-444	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-445	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-446	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-447	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH ₂
E-448	H	H	H	CH ₂ CH=CH ₂
E-449	CH ₃	H	H	CH ₂ CH=CH ₂
E-450	CH ₂ CH ₃	H	H	CH ₂ CH=CH ₂
E-451	CH ₂ CH=CH ₂	H	H	CH ₂ CH=CH ₂
E-452	CH ₂ Ph	H	H	CH ₂ CH=CH ₂
E-453	Ph	H	H	CH ₂ CH=CH ₂
E-454	COCH ₃	H	H	CH ₂ CH=CH ₂
E-455	COPh	H	H	CH ₂ CH=CH ₂
E-456	H	CH ₃	H	CH ₂ CH=CH ₂
E-457	CH ₃	CH ₃	H	CH ₂ CH=CH ₂
E-458	CH ₂ CH ₃	CH ₃	H	CH ₂ CH=CH ₂
E-459	CH ₂ CH=CH ₂	CH ₃	H	CH ₂ CH=CH ₂
E-460	CH ₂ Ph	CH ₃	H	CH ₂ CH=CH ₂
E-461	Ph	CH ₃	H	CH ₂ CH=CH ₂
E-462	COCH ₃	CH ₃	H	CH ₂ CH=CH ₂
E-463	COPh	CH ₃	H	CH ₂ CH=CH ₂
E-464	H	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-465	CH ₃	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-466	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-467	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-468	CH ₂ Ph	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-469	Ph	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-470	COCH ₃	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
E-471	COPh	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-472	H	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-473	CH ₃	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-474	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-475	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-476	CH ₂ Ph	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-477	Ph	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-478	COCH ₃	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-479	COPh	n-C ₄ H ₉	H	CH ₂ CH=CH ₂
E-480	H	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-481	CH ₃	i-C ₃ H ₇	H	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R ⁷
E-482	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-483	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-484	CH ₂ Ph	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-485	Ph	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-486	COCH ₃	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-487	COPh	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
E-488	H	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-489	CH ₃	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-490	CH ₂ CH ₃	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-491	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-492	CH ₂ Ph	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-493	Ph	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-494	COCH ₃	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-495	COPh	CH ₂ Ph	H	CH ₂ CH=CH ₂
E-496	H	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-497	CH ₃	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-498	CH ₂ CH ₃	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-499	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-500	CH ₂ Ph	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-501	Ph	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-502	COCH ₃	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-503	COPh	CH ₃	CH ₃	CH ₂ CH=CH ₂
E-504	H	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-505	CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-506	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-507	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-508	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-509	Ph	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-510	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
E-511	COPh	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-512	H	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-513	CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-514	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-515	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-516	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-517	Ph	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-518	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-519	COPh	n-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
E-520	H	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-521	CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-522	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-523	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R ⁷
E-524	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-525	Ph	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-526	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-527	COPh	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
E-528	H	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-529	CH ₃	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-530	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-531	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-532	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-533	Ph	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-534	COCH ₃	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-535	COPh	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
E-536	H		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-537	CH ₃		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-538	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-539	CH ₂ Ph		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-540	Ph		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-541	COCH ₃		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-542	COPh		CH ₂ CH ₂	CH ₂ CH=CH ₂
E-543	H		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-544	CH ₃		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-545	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-546	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-547	Ph		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-548	COCH ₃		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-549	COPh		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
E-550	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-551	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-552	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-553	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-554	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-555	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-556	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-557	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-558	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-559	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-560	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-561	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-562	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-563	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
E-564	H	H	H	CH ₂ Ph
E-565	CH ₃	H	H	CH ₂ Ph

Compound	R ¹	R ²	R ³	R'
E-566	CH ₂ CH ₃	H	H	CH ₂ Ph
E-567	CH ₂ CH=CH ₂	H	H	CH ₂ Ph
E-568	CH ₂ Ph	H	H	CH ₂ Ph
E-569	Ph	H	H	CH ₂ Ph
E-570	COCH ₃	H	H	CH ₂ Ph
E-571	COPh	H	H	CH ₂ Ph
E-572	H	CH ₃	H	CH ₂ Ph
E-573	CH ₃	CH ₃	H	CH ₂ Ph
E-574	CH ₂ CH ₃	CH ₃	H	CH ₂ Ph
E-575	CH ₂ CH=CH ₂	CH ₃	H	CH ₂ Ph
E-576	CH ₂ Ph	CH ₃	H	CH ₂ Ph
E-577	Ph	CH ₃	H	CH ₂ Ph
E-578	COCH ₃	CH ₃	H	CH ₂ Ph
E-579	COPh	CH ₃	H	CH ₂ Ph
E-580	H	CH ₃ CH ₂	H	CH ₂ Ph
E-581	CH ₃	CH ₃ CH ₂	H	CH ₂ Ph
E-582	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₂ Ph
E-583	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₂ Ph
E-584	CH ₂ Ph	CH ₃ CH ₂	H	CH ₂ Ph
E-585	Ph	CH ₃ CH ₂	H	CH ₂ Ph
E-586	COCH ₃	CH ₃ CH ₂	H	CH ₂ Ph
E-587	COPh	n-C ₃ H ₇	H	CH ₂ Ph
E-588	H	n-C ₃ H ₇	H	CH ₂ Ph
E-589	CH ₃	n-C ₃ H ₇	H	CH ₂ Ph
E-590	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₂ Ph
E-591	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₂ Ph
E-592	CH ₂ Ph	n-C ₃ H ₇	H	CH ₂ Ph
E-593	Ph	n-C ₃ H ₇	H	CH ₂ Ph
E-594	COCH ₃	n-C ₃ H ₇	H	CH ₂ Ph
E-595	COPh	n-C ₄ H ₉	H	CH ₂ Ph
E-596	H	i-C ₃ H ₇	H	CH ₂ Ph
E-597	CH ₃	i-C ₃ H ₇	H	CH ₂ Ph
E-598	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₂ Ph
E-599	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₂ Ph
E-600	CH ₂ Ph	i-C ₃ H ₇	H	CH ₂ Ph
E-601	Ph	i-C ₃ H ₇	H	CH ₂ Ph
E-602	COCH ₃	i-C ₃ H ₇	H	CH ₂ Ph
E-603	COPh	i-C ₃ H ₇	H	CH ₂ Ph
E-604	H	CH ₂ Ph	H	CH ₂ Ph
E-605	CH ₃	CH ₂ Ph	H	CH ₂ Ph
E-606	CH ₂ CH ₃	CH ₂ Ph	H	CH ₂ Ph
E-607	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₂ Ph

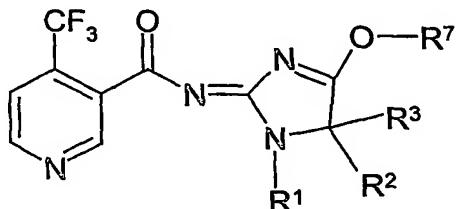
Compound	R ¹	R ²	R ³	R ⁷
E-608	CH ₂ Ph	CH ₂ Ph	H	CH ₂ Ph
E-609	Ph	CH ₂ Ph	H	CH ₂ Ph
E-610	COCH ₃	CH ₂ Ph	H	CH ₂ Ph
E-611	COPh	CH ₂ Ph	H	CH ₂ Ph
E-612	CH ₂ CH ₃	CH ₃	CH ₃	CH ₂ Ph
E-613	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₂ Ph
E-614	CH ₂ Ph	CH ₃	CH ₃	CH ₂ Ph
E-615	Ph	CH ₃	CH ₃	CH ₂ Ph
E-616	COCH ₃	CH ₃	CH ₃	CH ₂ Ph
E-617	COPh	CH ₃	CH ₃	CH ₂ Ph
E-618	H	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-619	CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-620	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-621	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-622	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-623	Ph	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-624	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₂ Ph
E-625	COPh	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-626	H	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-627	CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-628	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-629	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-630	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-631	Ph	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-632	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₂ Ph
E-633	COPh	n-C ₄ H ₉	CH ₃	CH ₂ Ph
E-634	H	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-635	CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-636	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-637	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-638	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-639	Ph	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-640	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-641	COPh	i-C ₃ H ₇	CH ₃	CH ₂ Ph
E-642	H	CH ₂ Ph	CH ₃	CH ₂ Ph
E-643	CH ₃	CH ₂ Ph	CH ₃	CH ₂ Ph
E-644	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₂ Ph
E-645	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₂ Ph
E-646	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₂ Ph
E-647	Ph	CH ₂ Ph	CH ₃	CH ₂ Ph
E-648	COCH ₃	CH ₂ Ph	CH ₃	CH ₂ Ph
E-649	COPh	CH ₂ Ph	CH ₃	CH ₂ Ph

Compound	R ¹	R ²	R ³	R ⁷
E-650	H		CH ₂ CH ₂	CH ₂ Ph
E-651	CH ₃		CH ₂ CH ₂	CH ₂ Ph
E-652	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₂ Ph
E-653	CH ₂ Ph		CH ₂ CH ₂	CH ₂ Ph
E-654	Ph		CH ₂ CH ₂	CH ₂ Ph
E-655	COCH ₃		CH ₂ CH ₂	CH ₂ Ph
E-656	COPh		CH ₂ CH ₂	CH ₂ Ph
E-657	H		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-658	CH ₃		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-659	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-660	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-661	Ph		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-662	COCH ₃		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-663	COPh		CH ₂ H ₂ CH ₂	CH ₂ Ph
E-664	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-665	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-666	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-667	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-668	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-669	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-670	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-671	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-672	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-673	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-674	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-675	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-676	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-677	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
E-678	H	H	H	C ₂ H ₄ O(C=O)CH ₃
E-679	CH ₃	H	H	C ₂ H ₄ O(C=O)CH ₃
E-680	CH ₂ CH ₃	H	H	C ₂ H ₄ O(C=O)CH ₃
E-681	CH ₂ CH=CH ₂	H	H	C ₂ H ₄ O(C=O)CH ₃
E-682	CH ₂ Ph	H	H	C ₂ H ₄ O(C=O)CH ₃
E-683	Ph	H	H	C ₂ H ₄ O(C=O)CH ₃
E-684	COCH ₃	H	H	C ₂ H ₄ O(C=O)CH ₃
E-685	COPh	H	H	C ₂ H ₄ O(C=O)CH ₃
E-686	H	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-687	CH ₃	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-688	CH ₂ CH ₃	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-689	CH ₂ CH=CH ₂	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-690	CH ₂ Ph	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-691	Ph	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃

Compound	R ¹	R ²	R ³	R'
E-692	COCH ₃	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-693	COPh	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
E-694	H	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-695	CH ₃	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-696	CH ₂ CH ₃	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-697	CH ₂ CH=CH ₂	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-698	CH ₂ Ph	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-699	Ph	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-700	COCH ₃	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-701	COPh	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
E-702	H		CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-703	CH ₃		CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-704	H		CH ₂ H ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-705	CH ₃		CH ₂ H ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-706	H		CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-707	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-708	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
E-709	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃

Table 6

Compounds of formula (If):



(If)

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Compound	R ¹	R ²	R ³	R'
F-1	H	H	H	CH ₃
F-2	CH ₃	H	H	CH ₃
F-3	CH ₂ CH ₃	H	H	CH ₃
F-4	CH ₂ CH=CH ₂	H	H	CH ₃
F-5	CH ₂ Ph	H	H	CH ₃
F-6	Ph	H	H	CH ₃
F-7	COCH ₃	H	H	CH ₃
F-8	COPh	H	H	CH ₃
F-9	H	CH ₃	H	CH ₃
F-10	CH ₃	CH ₃	H	CH ₃

Compound	R ¹	R ²	R ³	R'
F-11	CH ₂ CH ₃	CH ₃	H	CH ₃
F-12	CH ₂ CH=CH ₂	CH ₃	H	CH ₃
F-13	CH ₂ Ph	CH ₃	H	CH ₃
F-14	Ph	CH ₃	H	CH ₃
F-15	COCH ₃	CH ₃	H	CH ₃
F-16	COPh	CH ₃	H	CH ₃
F-17	H	CH ₃ CH ₂	H	CH ₃
F-18	CH ₃	CH ₃ CH ₂	H	CH ₃
F-19	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₃
F-20	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₃
F-21	CH ₂ Ph	CH ₃ CH ₂	H	CH ₃
F-22	Ph	CH ₃ CH ₂	H	CH ₃
F-23	COCH ₃	CH ₃ CH ₂	H	CH ₃
F-24	COPh	CH ₃ CH ₂	H	CH ₃
F-25	H	n-C ₃ H ₇	H	CH ₃
F-26	CH ₃	n-C ₃ H ₇	H	CH ₃
F-27	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₃
F-28	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₃
F-29	CH ₂ Ph	n-C ₃ H ₇	H	CH ₃
F-30	Ph	n-C ₃ H ₇	H	CH ₃
F-31	COCH ₃	n-C ₃ H ₇	H	CH ₃
F-32	COPh	n-C ₃ H ₇	H	CH ₃
F-33	H	i-C ₃ H ₇	H	CH ₃
F-34	CH ₃	i-C ₃ H ₇	H	CH ₃
F-35	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₃
F-36	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₃
F-37	CH ₂ Ph	i-C ₃ H ₇	H	CH ₃
F-38	Ph	i-C ₃ H ₇	H	CH ₃
F-39	COCH ₃	i-C ₃ H ₇	H	CH ₃
F-40	COPh	i-C ₃ H ₇	H	CH ₃
F-41	H	n-C ₄ H ₉	H	CH ₃
F-42	CH ₃	n-C ₄ H ₉	H	CH ₃
F-43	CH ₂ CH ₃	n-C ₄ H ₉	H	CH ₃
F-44	CH ₂ CH=CH ₂	n-C ₄ H ₉	H	CH ₃
F-45	CH ₂ Ph	n-C ₄ H ₉	H	CH ₃
F-46	Ph	n-C ₄ H ₉	H	CH ₃
F-47	COCH ₃	n-C ₄ H ₉	H	CH ₃
F-48	COPh	n-C ₄ H ₉	H	CH ₃
F-49	H	i-C ₄ H ₉	H	CH ₃
F-50	CH ₃	i-C ₄ H ₉	H	CH ₃
F-51	CH ₂ CH ₃	i-C ₄ H ₉	H	CH ₃
F-52	CH ₂ CH=CH ₂	i-C ₄ H ₉	H	CH ₃

Compound	R ¹	R ²	R ³	R'
F-53	CH ₂ Ph	i-C ₄ H ₉	H	CH ₃
F-54	Ph	i-C ₄ H ₉	H	CH ₃
F-55	COCH ₃	i-C ₄ H ₉	H	CH ₃
F-56	COPh	i-C ₄ H ₉	H	CH ₃
F-57	H	s-C ₄ H ₉	H	CH ₃
F-58	CH ₃	s-C ₄ H ₉	H	CH ₃
F-59	CH ₂ CH ₃	s-C ₄ H ₉	H	CH ₃
F-60	CH ₂ CH=CH ₂	s-C ₄ H ₉	H	CH ₃
F-61	CH ₂ Ph	s-C ₄ H ₉	H	CH ₃
F-62	Ph	s-C ₄ H ₉	H	CH ₃
F-63	COCH ₃	s-C ₄ H ₉	H	CH ₃
F-64	COPh	s-C ₄ H ₉	H	CH ₃
F-65	H	t-C ₄ H ₉	H	CH ₃
F-66	CH ₃	t-C ₄ H ₉	H	CH ₃
F-67	CH ₂ CH ₃	t-C ₄ H ₉	H	CH ₃
F-68	CH ₂ CH=CH ₂	t-C ₄ H ₉	H	CH ₃
F-69	CH ₂ Ph	t-C ₄ H ₉	H	CH ₃
F-70	Ph	t-C ₄ H ₉	H	CH ₃
F-71	COCH ₃	t-C ₄ H ₉	H	CH ₃
F-72	COPh	t-C ₄ H ₉	H	CH ₃
F-73	H	CH ₂ Ph	H	CH ₃
F-74	CH ₃	CH ₂ Ph	H	CH ₃
F-75	CH ₂ CH ₃	CH ₂ Ph	H	CH ₃
F-76	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₃
F-77	CH ₂ Ph	CH ₂ Ph	H	CH ₃
F-78	Ph	CH ₂ Ph	H	CH ₃
F-79	COCH ₃	CH ₂ Ph	H	CH ₃
F-80	COPh	CH ₂ Ph	H	CH ₃
F-81	H	Ph	H	CH ₃
F-82	CH ₃	Ph	H	CH ₃
F-83	CH ₂ CH ₃	Ph	H	CH ₃
F-84	CH ₂ CH=CH ₂	Ph	H	CH ₃
F-85	CH ₂ Ph	Ph	H	CH ₃
F-86	Ph	Ph	H	CH ₃
F-87	COCH ₃	Ph	H	CH ₃
F-88	COPh	Ph	H	CH ₃
F-89	H	CH ₂ OH	H	CH ₃
F-90	CH ₃	CH ₂ OH	H	CH ₃
F-91	CH ₂ CH ₃	CH ₂ OH	H	CH ₃
F-92	CH ₂ CH=CH ₂	CH ₂ OH	H	CH ₃
F-93	CH ₂ Ph	CH ₂ OH	H	CH ₃
F-94	Ph	CH ₂ OH	H	CH ₃

Compound	R ¹	R ²	R ³	R'
F-95	COCH ₃	CH ₂ OH	H	CH ₃
F-96	COPh	CH ₂ OH	H	CH ₃
F-97	H	CH(OH)CH ₃	H	CH ₃
F-98	CH ₃	CH(OH)CH ₃	H	CH ₃
F-99	CH ₂ CH ₃	CH(OH)CH ₃	H	CH ₃
F-100	CH ₂ CH=CH ₂	CH(OH)CH ₃	H	CH ₃
F-101	CH ₂ Ph	CH(OH)CH ₃	H	CH ₃
F-102	Ph	CH(OH)CH ₃	H	CH ₃
F-103	COCH ₃	CH(OH)CH ₃	H	CH ₃
F-104	COPh	CH(OH)CH ₃	H	CH ₃
F-105	H	CH ₂ SH	H	CH ₃
F-106	CH ₃	CH ₂ SH	H	CH ₃
F-107	CH ₂ CH ₃	CH ₂ SH	H	CH ₃
F-108	CH ₂ CH=CH ₂	CH ₂ SH	H	CH ₃
F-109	CH ₂ Ph	CH ₂ SH	H	CH ₃
F-110	Ph	CH ₂ SH	H	CH ₃
F-111	COCH ₃	CH ₂ SH	H	CH ₃
F-112	COPh	CH ₂ SH	H	CH ₃
F-113	H	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-114	CH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-115	CH ₂ CH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-116	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-117	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-118	Ph	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-119	COCH ₃	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-120	COPh	CH ₂ SCH ₂ CH ₃	H	CH ₃
F-121	H	CH ₂ CONH ₂	H	CH ₃
F-122	CH ₃	CH ₂ CONH ₂	H	CH ₃
F-123	CH ₂ CH ₃	CH ₂ CONH ₂	H	CH ₃
F-124	CH ₂ CH=CH ₂	CH ₂ CONH ₂	H	CH ₃
F-125	CH ₂ Ph	CH ₂ CONH ₂	H	CH ₃
F-126	Ph	CH ₂ CONH ₂	H	CH ₃
F-127	COCH ₃	CH ₂ CONH ₂	H	CH ₃
F-128	COPh	CH ₂ CONH ₂	H	CH ₃
F-129	H	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-130	CH ₃	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-131	CH ₂ CH ₃	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-132	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-133	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-134	Ph	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-135	COCH ₃	CH ₂ CH ₂ CONH ₂	H	CH ₃
F-136	COPh	CH ₂ CH ₂ CONH ₂	H	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
F-137	H	CH ₃ CH ₂	CH ₃	CH ₃
F-138	CH ₃	CH ₃ CH ₂	CH ₃	CH ₃
F-139	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₃
F-140	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₃
F-141	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₃
F-142	Ph	CH ₃ CH ₂	CH ₃	CH ₃
F-143	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₃
F-144	COPh	CH ₃ CH ₂	CH ₃	CH ₃
F-145	H	n-C ₃ H ₇	CH ₃	CH ₃
F-146	CH ₃	n-C ₃ H ₇	CH ₃	CH ₃
F-147	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₃
F-148	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₃
F-149	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₃
F-150	Ph	n-C ₃ H ₇	CH ₃	CH ₃
F-151	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₃
F-152	COPh	n-C ₃ H ₇	CH ₃	CH ₃
F-153	H	i-C ₃ H ₇	CH ₃	CH ₃
F-154	CH ₃	i-C ₃ H ₇	CH ₃	CH ₃
F-155	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₃
F-156	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₃
F-157	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₃
F-158	Ph	i-C ₃ H ₇	CH ₃	CH ₃
F-159	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₃
F-160	COPh	i-C ₃ H ₇	CH ₃	CH ₃
F-161	H	n-C ₄ H ₉	CH ₃	CH ₃
F-162	CH ₃	n-C ₄ H ₉	CH ₃	CH ₃
F-163	CH ₂ CH ₃	n-C ₄ H ₉	CH ₃	CH ₃
F-164	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃	CH ₃
F-165	CH ₂ Ph	n-C ₄ H ₉	CH ₃	CH ₃
F-166	Ph	n-C ₄ H ₉	CH ₃	CH ₃
F-167	COCH ₃	n-C ₄ H ₉	CH ₃	CH ₃
F-168	COPh	n-C ₄ H ₉	CH ₃	CH ₃
F-169	H	i-C ₄ H ₉	CH ₃	CH ₃
F-170	CH ₃	i-C ₄ H ₉	CH ₃	CH ₃
F-171	CH ₂ CH ₃	i-C ₄ H ₉	CH ₃	CH ₃
F-172	CH ₂ CH=CH ₂	i-C ₄ H ₉	CH ₃	CH ₃
F-173	CH ₂ Ph	i-C ₄ H ₉	CH ₃	CH ₃
F-174	Ph	i-C ₄ H ₉	CH ₃	CH ₃
F-175	COCH ₃	i-C ₄ H ₉	CH ₃	CH ₃
F-176	COPh	i-C ₄ H ₉	CH ₃	CH ₃
F-177	H	s-C ₄ H ₉	CH ₃	CH ₃
F-178	CH ₃	s-C ₄ H ₉	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
F-179	CH ₂ CH ₃	s-C ₄ H ₉	CH ₃	CH ₃
F-180	CH ₂ CH=CH ₂	s-C ₄ H ₉	CH ₃	CH ₃
F-181	CH ₂ Ph	s-C ₄ H ₉	CH ₃	CH ₃
F-182	Ph	s-C ₄ H ₉	CH ₃	CH ₃
F-183	COCH ₃	s-C ₄ H ₉	CH ₃	CH ₃
F-184	COPh	s-C ₄ H ₉	CH ₃	CH ₃
F-185	H	t-C ₄ H ₉	CH ₃	CH ₃
F-186	CH ₃	t-C ₄ H ₉	CH ₃	CH ₃
F-187	CH ₂ CH ₃	t-C ₄ H ₉	CH ₃	CH ₃
F-188	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃	CH ₃
F-189	CH ₂ Ph	t-C ₄ H ₉	CH ₃	CH ₃
F-190	Ph	t-C ₄ H ₉	CH ₃	CH ₃
F-191	COCH ₃	t-C ₄ H ₉	CH ₃	CH ₃
F-192	COPh	t-C ₄ H ₉	CH ₃	CH ₃
F-193	H	CH ₂ Ph	CH ₃	CH ₃
F-194	CH ₃	CH ₂ Ph	CH ₃	CH ₃
F-195	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₃
F-196	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₃
F-197	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₃
F-198	Ph	CH ₂ Ph	CH ₃	CH ₃
F-199	COCH ₃	CH ₂ Ph	CH ₃	CH ₃
F-200	COPh	CH ₂ Ph	CH ₃	CH ₃
F-201	H	Ph	CH ₃	CH ₃
F-202	CH ₃	Ph	CH ₃	CH ₃
F-203	CH ₂ CH ₃	Ph	CH ₃	CH ₃
F-204	CH ₂ CH=CH ₂	Ph	CH ₃	CH ₃
F-205	CH ₂ Ph	Ph	CH ₃	CH ₃
F-206	Ph	Ph	CH ₃	CH ₃
F-207	COCH ₃	Ph	CH ₃	CH ₃
F-208	COPh	Ph	CH ₃	CH ₃
F-209	H	CH ₂ OH	CH ₃	CH ₃
F-210	CH ₃	CH ₂ OH	CH ₃	CH ₃
F-211	CH ₂ CH ₃	CH ₂ OH	CH ₃	CH ₃
F-212	CH ₂ CH=CH ₂	CH ₂ OH	CH ₃	CH ₃
F-213	CH ₂ Ph	CH ₂ OH	CH ₃	CH ₃
F-214	Ph	CH ₂ OH	CH ₃	CH ₃
F-215	COCH ₃	CH ₂ OH	CH ₃	CH ₃
F-216	COPh	CH ₂ OH	CH ₃	CH ₃
F-217	H	CH(OH)CH ₃	CH ₃	CH ₃
F-218	CH ₃	CH(OH)CH ₃	CH ₃	CH ₃
F-219	CH ₂ CH ₃	CH(OH)CH ₃	CH ₃	CH ₃
F-220	CH ₂ CH=CH ₂	CH(OH)CH ₃	CH ₃	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
F-221	CH ₂ Ph	CH(OH)CH ₃	CH ₃	CH ₃
F-222	Ph	CH(OH)CH ₃	CH ₃	CH ₃
F-223	COCH ₃	CH(OH)CH ₃	CH ₃	CH ₃
F-224	COPh	CH(OH)CH ₃	CH ₃	CH ₃
F-225	H	CH ₂ SH	CH ₃	CH ₃
F-226	CH ₃	CH ₂ SH	CH ₃	CH ₃
F-227	CH ₂ CH ₃	CH ₂ SH	CH ₃	CH ₃
F-228	CH ₂ CH=CH ₂	CH ₂ SH	CH ₃	CH ₃
F-229	CH ₂ Ph	CH ₂ SH	CH ₃	CH ₃
F-230	Ph	CH ₂ SH	CH ₃	CH ₃
F-231	COCH ₃	CH ₂ SH	CH ₃	CH ₃
F-232	COPh	CH ₂ SH	CH ₃	CH ₃
F-233	H	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-234	CH ₃	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-235	CH ₂ CH ₃	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-236	CH ₂ CH=CH ₂	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-237	CH ₂ Ph	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-238	Ph	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-239	COCH ₃	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-240	COPh	CH ₂ SCH ₂ CH ₃	CH ₃	CH ₃
F-241	H	CH ₂ CONH ₂	CH ₃	CH ₃
F-242	CH ₃	CH ₂ CONH ₂	CH ₃	CH ₃
F-243	CH ₂ CH ₃	CH ₂ CONH ₂	CH ₃	CH ₃
F-244	CH ₂ CH=CH ₂	CH ₂ CONH ₂	CH ₃	CH ₃
F-245	CH ₂ Ph	CH ₂ CONH ₂	CH ₃	CH ₃
F-246	Ph	CH ₂ CONH ₂	CH ₃	CH ₃
F-247	COCH ₃	CH ₂ CONH ₂	CH ₃	CH ₃
F-248	COPh	CH ₂ CONH ₂	CH ₃	CH ₃
F-249	H	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-250	CH ₃	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-251	CH ₂ CH ₃	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-252	CH ₂ CH=CH ₂	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-253	CH ₂ Ph	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-254	Ph	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-255	COCH ₃	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-256	COPh	CH ₂ CH ₂ CONH ₂	CH ₃	CH ₃
F-257	CH ₃	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
F-258	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
F-259	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
F-260	CH ₂ Ph	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
F-261	Ph	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
F-262	COCH ₃	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
F-263	COPh	CH ₃ CH ₂	CH ₃ CH ₂	CH ₃
F-264	H	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-265	CH ₃	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-266	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-267	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-268	CH ₂ Ph	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-269	Ph	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-270	COCH ₃	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-271	COPh	n-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-272	H	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-273	CH ₃	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-274	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-275	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-276	CH ₂ Ph	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-277	Ph	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-278	COCH ₃	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-279	COPh	i-C ₃ H ₇	CH ₃ CH ₂	CH ₃
F-280	H	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-281	CH ₃	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-282	CH ₂ CH ₃	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-283	CH ₂ CH=CH ₂	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-284	CH ₂ Ph	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-285	Ph	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-286	COCH ₃	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-287	COPh	n-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-288	H	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-289	CH ₃	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-290	CH ₂ CH ₃	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-291	CH ₂ CH=CH ₂	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-292	CH ₂ Ph	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-293	Ph	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-294	COCH ₃	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-295	COPh	t-C ₄ H ₉	CH ₃ CH ₂	CH ₃
F-296	H	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-297	CH ₃	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-298	CH ₂ CH ₃	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-299	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-300	CH ₂ Ph	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-301	Ph	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-302	COCH ₃	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-303	COPh	CH ₂ Ph	CH ₃ CH ₂	CH ₃
F-304	H		CH ₂ CH ₂	CH ₃

Compound	R ¹	R ²	R ³	R ⁷
F-305	CH ₃		CH ₂ CH ₂	CH ₃
F-306	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₃
F-307	CH ₂ Ph		CH ₂ CH ₂	CH ₃
F-308	Ph		CH ₂ CH ₂	CH ₃
F-309	COCH ₃		CH ₂ CH ₂	CH ₃
F-310	COPh		CH ₂ CH ₂	CH ₃
F-311	H		CH ₂ H ₂ CH ₂	CH ₃
F-312	CH ₃		CH ₂ H ₂ CH ₂	CH ₃
F-313	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₃
F-314	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₃
F-315	Ph		CH ₂ H ₂ CH ₂	CH ₃
F-316	COCH ₃		CH ₂ H ₂ CH ₂	CH ₃
F-317	COPh		CH ₂ H ₂ CH ₂	CH ₃
F-318	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-319	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-320	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-321	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-322	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-323	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-324	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-325	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-326	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-327	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-328	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-329	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-330	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-331	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃
F-332	H	H	H	CH ₃ CH ₂
F-333	CH ₃	H	H	CH ₃ CH ₂
F-334	CH ₂ CH ₃	H	H	CH ₃ CH ₂
F-335	CH ₂ CH=CH ₂	H	H	CH ₃ CH ₂
F-336	CH ₂ Ph	H	H	CH ₃ CH ₂
F-337	Ph	H	H	CH ₃ CH ₂
F-338	COCH ₃	H	H	CH ₃ CH ₂
F-339	COPh	H	H	CH ₃ CH ₂
F-340	H	CH ₃	H	CH ₃ CH ₂
F-341	CH ₃	CH ₃	H	CH ₃ CH ₂
F-342	CH ₂ CH ₃	CH ₃ ..	H	CH ₃ CH ₂
F-343	CH ₂ CH=CH ₂	CH ₃	H	CH ₃ CH ₂
F-344	CH ₂ Ph	CH ₃	H	CH ₃ CH ₂
F-345	Ph	CH ₃	H	CH ₃ CH ₂
F-346	COCH ₃	CH ₃	H	CH ₃ CH ₂

Compound	R ¹	R ²	R ³	R ⁷
F-347	COPh	CH ₃	H	CH ₃ CH ₂
F-348	H	CH ₃ CH ₂	H	CH ₃ CH ₂
F-349	CH ₃	CH ₃ CH ₂	H	CH ₃ CH ₂
F-350	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₃ CH ₂
F-351	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₃ CH ₂
F-352	CH ₂ Ph	CH ₃ CH ₂	H	CH ₃ CH ₂
F-353	Ph	CH ₃ CH ₂	H	CH ₃ CH ₂
F-354	COCH ₃	CH ₃ CH ₂	H	CH ₃ CH ₂
F-355	COPh	n-C ₃ H ₇	H	CH ₃ CH ₂
F-356	H	n-C ₃ H ₇	H	CH ₃ CH ₂
F-357	CH ₃	n-C ₃ H ₇	H	CH ₃ CH ₂
F-358	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₃ CH ₂
F-359	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₃ CH ₂
F-360	CH ₂ Ph	n-C ₃ H ₇	H	CH ₃ CH ₂
F-361	Ph	n-C ₃ H ₇	H	CH ₃ CH ₂
F-362	COCH ₃	n-C ₃ H ₇	H	CH ₃ CH ₂
F-363	COPh	n-C ₄ H ₉	H	CH ₃ CH ₂
F-364	H	i-C ₃ H ₇	H	CH ₃ CH ₂
F-365	CH ₃	i-C ₃ H ₇	H	CH ₃ CH ₂
F-366	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₃ CH ₂
F-367	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₃ CH ₂
F-368	CH ₂ Ph	i-C ₃ H ₇	H	CH ₃ CH ₂
F-369	Ph	i-C ₃ H ₇	H	CH ₃ CH ₂
F-370	COCH ₃	i-C ₃ H ₇	H	CH ₃ CH ₂
F-371	COPh	i-C ₃ H ₇	H	CH ₃ CH ₂
F-372	H	CH ₂ Ph	H	CH ₃ CH ₂
F-373	CH ₃	CH ₂ Ph	H	CH ₃ CH ₂
F-374	CH ₂ CH ₃	CH ₂ Ph	H	CH ₃ CH ₂
F-375	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₃ CH ₂
F-376	CH ₂ Ph	CH ₂ Ph	H	CH ₃ CH ₂
F-377	Ph	CH ₂ Ph	H	CH ₃ CH ₂
F-378	COCH ₃	CH ₂ Ph	H	CH ₃ CH ₂
F-379	COPh	CH ₂ Ph	H	CH ₃ CH ₂
F-380	H	CH ₃	CH ₃	CH ₃ CH ₂
F-381	CH ₃	CH ₃	CH ₃	CH ₃ CH ₂
F-382	CH ₂ CH ₃	CH ₃	CH ₃	CH ₃ CH ₂
F-383	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₃ CH ₂
F-384	CH ₂ Ph	CH ₃	CH ₃	CH ₃ CH ₂
F-385	Ph	CH ₃	CH ₃	CH ₃ CH ₂
F-386	COCH ₃	CH ₃	CH ₃	CH ₃ CH ₂
F-387	COPh	CH ₃	CH ₃	CH ₃ CH ₂
F-388	H	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂

Compound	R ¹	R ²	R ³	R ⁷
F-389	CH ₃	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
F-390	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
F-391	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
F-392	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
F-393	Ph	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
F-394	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₃ CH ₂
F-395	COPh	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-396	H	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-397	CH ₃	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-398	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-399	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-400	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-401	Ph	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-402	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-403	COPh	n-C ₄ H ₉	CH ₃	CH ₃ CH ₂
F-404	H	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-405	CH ₃	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-406	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-407	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-408	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-409	Ph	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-410	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-411	COPh	i-C ₃ H ₇	CH ₃	CH ₃ CH ₂
F-412	H	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-413	CH ₃	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-414	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-415	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-416	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-417	Ph	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-418	COCH ₃	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-419	COPh	CH ₂ Ph	CH ₃	CH ₃ CH ₂
F-420	H		CH ₂ CH ₂	CH ₃ CH ₂
F-421	CH ₃		CH ₂ CH ₂	CH ₃ CH ₂
F-422	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₃ CH ₂
F-423	CH ₂ Ph		CH ₂ CH ₂	CH ₃ CH ₂
F-424	Ph		CH ₂ CH ₂	CH ₃ CH ₂
F-425	COCH ₃		CH ₂ CH ₂	CH ₃ CH ₂
F-426	COPh		CH ₂ CH ₂	CH ₃ CH ₂
F-427	H		CH ₂ H ₂ CH ₂	CH ₃ CH ₂
F-428	CH ₃		CH ₂ H ₂ CH ₂	CH ₃ CH ₂
F-429	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₃ CH ₂
F-430	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₃ CH ₂

Compound	R ¹	R ²	R ³	R'
F-431	Ph		CH ₂ H ₂ CH ₂	CH ₃ CH ₂
F-432	COCH ₃		CH ₂ H ₂ CH ₂	CH ₃ CH ₂
F-433	COPh		CH ₂ H ₂ CH ₂	CH ₃ CH ₂
F-434	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-435	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-436	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-437	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-438	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-439	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-440	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-441	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-442	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-443	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-444	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-445	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-446	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-447	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₃ CH ₂
F-448	H	H	H	CH ₂ CH=CH ₂
F-449	CH ₃	H	H	CH ₂ CH=CH ₂
F-450	CH ₂ CH ₃	H	H	CH ₂ CH=CH ₂
F-451	CH ₂ CH=CH ₂	H	H	CH ₂ CH=CH ₂
F-452	CH ₂ Ph	H	H	CH ₂ CH=CH ₂
F-453	Ph	H	H	CH ₂ CH=CH ₂
F-454	COCH ₃	H	H	CH ₂ CH=CH ₂
F-455	COPh	H	H	CH ₂ CH=CH ₂
F-456	H	CH ₃	H	CH ₂ CH=CH ₂
F-457	CH ₃	CH ₃	H	CH ₂ CH=CH ₂
F-458	CH ₂ CH ₃	CH ₃	H	CH ₂ CH=CH ₂
F-459	CH ₂ CH=CH ₂	CH ₃	H	CH ₂ CH=CH ₂
F-460	CH ₂ Ph	CH ₃	H	CH ₂ CH=CH ₂
F-461	Ph	CH ₃	H	CH ₂ CH=CH ₂
F-462	COCH ₃	CH ₃	H	CH ₂ CH=CH ₂
F-463	COPh	CH ₃	H	CH ₂ CH=CH ₂
F-464	H	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-465	CH ₃	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-466	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-467	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-468	CH ₂ Ph	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-469	Ph	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-470	COCH ₃	CH ₃ CH ₂	H	CH ₂ CH=CH ₂
F-471	COPh	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-472	H	n-C ₃ H ₇	H	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R ⁷
F-473	CH ₃	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-474	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-475	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-476	CH ₂ Ph	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-477	Ph	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-478	COCH ₃	n-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-479	COPh	n-C ₄ H ₉	H	CH ₂ CH=CH ₂
F-480	H	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-481	CH ₃	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-482	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-483	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-484	CH ₂ Ph	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-485	Ph	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-486	COCH ₃	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-487	COPh	i-C ₃ H ₇	H	CH ₂ CH=CH ₂
F-488	H	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-489	CH ₃	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-490	CH ₂ CH ₃	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-491	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-492	CH ₂ Ph	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-493	Ph	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-494	COCH ₃	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-495	COPh	CH ₂ Ph	H	CH ₂ CH=CH ₂
F-496	H	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-497	CH ₃	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-498	CH ₂ CH ₃	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-499	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-500	CH ₂ Ph	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-501	Ph	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-502	COCH ₃	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-503	COPh	CH ₃	CH ₃	CH ₂ CH=CH ₂
F-504	H	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-505	CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-506	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-507	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-508	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-509	Ph	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-510	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₂ CH=CH ₂
F-511	COPh	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-512	H	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-513	CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-514	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R'
F-515	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-516	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-517	Ph	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-518	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-519	COPh	n-C ₄ H ₉	CH ₃	CH ₂ CH=CH ₂
F-520	H	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-521	CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-522	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-523	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-524	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-525	Ph	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-526	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-527	COPh	i-C ₃ H ₇	CH ₃	CH ₂ CH=CH ₂
F-528	H	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-529	CH ₃	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-530	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-531	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-532	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-533	Ph	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-534	COCH ₃	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-535	COPh	CH ₂ Ph	CH ₃	CH ₂ CH=CH ₂
F-536	H		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-537	CH ₃		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-538	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-539	CH ₂ Ph		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-540	Ph		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-541	COCH ₃		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-542	COPh		CH ₂ CH ₂	CH ₂ CH=CH ₂
F-543	H		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-544	CH ₃		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-545	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-546	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-547	Ph		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-548	COCH ₃		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-549	COPh		CH ₂ H ₂ CH ₂	CH ₂ CH=CH ₂
F-550	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-551	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-552	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-553	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-554	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-555	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-556	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂

Compound	R ¹	R ²	R ³	R ⁷
F-557	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-558	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-559	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-560	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-561	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-562	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-563	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ CH=CH ₂
F-564	H	H		CH ₂ Ph
F-565	CH ₃	H		CH ₂ Ph
F-566	CH ₂ CH ₃	H		CH ₂ Ph
F-567	CH ₂ CH=CH ₂	H		CH ₂ Ph
F-568	CH ₂ Ph	H		CH ₂ Ph
F-569	Ph	H		CH ₂ Ph
F-570	COCH ₃	H		CH ₂ Ph
F-571	COPh	H		CH ₂ Ph
F-572	H	CH ₃	H	CH ₂ Ph
F-573	CH ₃	CH ₃	H	CH ₂ Ph
F-574	CH ₂ CH ₃	CH ₃	H	CH ₂ Ph
F-575	CH ₂ CH=CH ₂	CH ₃	H	CH ₂ Ph
F-576	CH ₂ Ph	CH ₃	H	CH ₂ Ph
F-577	Ph	CH ₃	H	CH ₂ Ph
F-578	COCH ₃	CH ₃	H	CH ₂ Ph
F-579	COPh	CH ₃	H	CH ₂ Ph
F-580	H	CH ₃ CH ₂	H	CH ₂ Ph
F-581	CH ₃	CH ₃ CH ₂	H	CH ₂ Ph
F-582	CH ₂ CH ₃	CH ₃ CH ₂	H	CH ₂ Ph
F-583	CH ₂ CH=CH ₂	CH ₃ CH ₂	H	CH ₂ Ph
F-584	CH ₂ Ph	CH ₃ CH ₂	H	CH ₂ Ph
F-585	Ph	CH ₃ CH ₂	H	CH ₂ Ph
F-586	COCH ₃	CH ₃ CH ₂	H	CH ₂ Ph
F-587	COPh	n-C ₃ H ₇	H	CH ₂ Ph
F-588	H	n-C ₃ H ₇	H	CH ₂ Ph
F-589	CH ₃	n-C ₃ H ₇	H	CH ₂ Ph
F-590	CH ₂ CH ₃	n-C ₃ H ₇	H	CH ₂ Ph
F-591	CH ₂ CH=CH ₂	n-C ₃ H ₇	H	CH ₂ Ph
F-592	CH ₂ Ph	n-C ₃ H ₇	H	CH ₂ Ph
F-593	Ph	n-C ₃ H ₇	H	CH ₂ Ph
F-594	COCH ₃	n-C ₃ H ₇	H	CH ₂ Ph
F-595	COPh	n-C ₄ H ₉	H	CH ₂ Ph
F-596	H	i-C ₃ H ₇	H	CH ₂ Ph
F-597	CH ₃	i-C ₃ H ₇	H	CH ₂ Ph
F-598	CH ₂ CH ₃	i-C ₃ H ₇	H	CH ₂ Ph

Compound	R ¹	R ²	R ³	R ⁷
F-599	CH ₂ CH=CH ₂	i-C ₃ H ₇	H	CH ₂ Ph
F-600	CH ₂ Ph	i-C ₃ H ₇	H	CH ₂ Ph
F-601	Ph	i-C ₃ H ₇	H	CH ₂ Ph
F-602	COCH ₃	i-C ₃ H ₇	H	CH ₂ Ph
F-603	COPh	i-C ₃ H ₇	H	CH ₂ Ph
F-604	H	CH ₂ Ph	H	CH ₂ Ph
F-605	CH ₃	CH ₂ Ph	H	CH ₂ Ph
F-606	CH ₂ CH ₃	CH ₂ Ph	H	CH ₂ Ph
F-607	CH ₂ CH=CH ₂	CH ₂ Ph	H	CH ₂ Ph
F-608	CH ₂ Ph	CH ₂ Ph	H	CH ₂ Ph
F-609	Ph	CH ₂ Ph	H	CH ₂ Ph
F-610	COCH ₃	CH ₂ Ph	H	CH ₂ Ph
F-611	COPh	CH ₂ Ph	H	CH ₂ Ph
F-612	CH ₂ CH ₃	CH ₃	CH ₃	CH ₂ Ph
F-613	CH ₂ CH=CH ₂	CH ₃	CH ₃	CH ₂ Ph
F-614	CH ₂ Ph	CH ₃	CH ₃	CH ₂ Ph
F-615	Ph	CH ₃	CH ₃	CH ₂ Ph
F-616	COCH ₃	CH ₃	CH ₃	CH ₂ Ph
F-617	COPh	CH ₃	CH ₃	CH ₂ Ph
F-618	H	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-619	CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-620	CH ₂ CH ₃	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-621	CH ₂ CH=CH ₂	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-622	CH ₂ Ph	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-623	Ph	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-624	COCH ₃	CH ₃ CH ₂	CH ₃	CH ₂ Ph
F-625	COPh	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-626	H	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-627	CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-628	CH ₂ CH ₃	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-629	CH ₂ CH=CH ₂	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-630	CH ₂ Ph	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-631	Ph	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-632	COCH ₃	n-C ₃ H ₇	CH ₃	CH ₂ Ph
F-633	COPh	n-C ₄ H ₉	CH ₃	CH ₂ Ph
F-634	H	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-635	CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-636	CH ₂ CH ₃	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-637	CH ₂ CH=CH ₂	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-638	CH ₂ Ph	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-639	Ph	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-640	COCH ₃	i-C ₃ H ₇	CH ₃	CH ₂ Ph

Compound	R ¹	R ²	R ³	R ⁷
F-641	COPh	i-C ₃ H ₇	CH ₃	CH ₂ Ph
F-642	H	CH ₂ Ph	CH ₃	CH ₂ Ph
F-643	CH ₃	CH ₂ Ph	CH ₃	CH ₂ Ph
F-644	CH ₂ CH ₃	CH ₂ Ph	CH ₃	CH ₂ Ph
F-645	CH ₂ CH=CH ₂	CH ₂ Ph	CH ₃	CH ₂ Ph
F-646	CH ₂ Ph	CH ₂ Ph	CH ₃	CH ₂ Ph
F-647	Ph	CH ₂ Ph	CH ₃	CH ₂ Ph
F-648	COCH ₃	CH ₂ Ph	CH ₃	CH ₂ Ph
F-649	COPh	CH ₂ Ph	CH ₃	CH ₂ Ph
F-650	H		CH ₂ CH ₂	CH ₂ Ph
F-651	CH ₃		CH ₂ CH ₂	CH ₂ Ph
F-652	CH ₂ CH=CH ₂		CH ₂ CH ₂	CH ₂ Ph
F-653	CH ₂ Ph		CH ₂ CH ₂	CH ₂ Ph
F-654	Ph		CH ₂ CH ₂	CH ₂ Ph
F-655	COCH ₃		CH ₂ CH ₂	CH ₂ Ph
F-656	COPh		CH ₂ CH ₂	CH ₂ Ph
F-657	H		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-658	CH ₃		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-659	CH ₂ CH=CH ₂		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-660	CH ₂ Ph		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-661	Ph		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-662	COCH ₃		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-663	COPh		CH ₂ H ₂ CH ₂	CH ₂ Ph
F-664	H		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-665	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-666	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-667	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-668	Ph		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-669	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-670	COPh		CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-671	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-672	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-673	CH ₂ CH=CH ₂		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-674	CH ₂ Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-675	Ph		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-676	COCH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-677	COPh		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	CH ₂ Ph
F-678	H	H	H	C ₂ H ₄ O(C=O)CH ₃
F-679	CH ₃	H	H	C ₂ H ₄ O(C=O)CH ₃
F-680	CH ₂ CH ₃	H	H	C ₂ H ₄ O(C=O)CH ₃
F-681	CH ₂ CH=CH ₂	H	H	C ₂ H ₄ O(C=O)CH ₃
F-682	CH ₂ Ph	H	H	C ₂ H ₄ O(C=O)CH ₃

Compound	R ¹	R ²	R ³	R'
F-683	Ph	H	H	C ₂ H ₄ O(C=O)CH ₃
F-684	COCH ₃	H	H	C ₂ H ₄ O(C=O)CH ₃
F-685	COPh	H	H	C ₂ H ₄ O(C=O)CH ₃
F-686	H	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-687	CH ₃	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-688	CH ₂ CH ₃	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-689	CH ₂ CH=CH ₂	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-690	CH ₂ Ph	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-691	Ph	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-692	COCH ₃	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-693	COPh	CH ₃	H	C ₂ H ₄ O(C=O)CH ₃
F-694	H	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-695	CH ₃	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-696	CH ₂ CH ₃	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-697	CH ₂ CH=CH ₂	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-698	CH ₂ Ph	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-699	Ph	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-700	COCH ₃	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-701	COPh	CH ₃	CH ₃	C ₂ H ₄ O(C=O)CH ₃
F-702	H		CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-703	CH ₃		CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-704	H		CH ₂ H ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-705	CH ₃		CH ₂ H ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-706	H		CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-707	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-708	H		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃
F-709	CH ₃		CH ₂ CH ₂ CH ₂ CH ₂ CH ₂	C ₂ H ₄ O(C=O)CH ₃

Table 7

1H-NMR spectral details for representative Examples from the above Tables.

5 Spectra were measured in deuteriochloroform unless otherwise stated.

Cpd	1H-NMR
A-86	1.57(s, 6H), 7.66(d, 1H), 8.15(brs, 1H), 8.92(d, 1H), 9.37(s, 1H), 11.10(brs, 1H)
A-101	0.93(d, 3H), 1.07(d, 3H), 1.57(s, 3H), 2.1-.2.3(m, 1H), 7.65(d, 1H), 8.91(d, 1H), 9.32(s, 1H)
A-121	1.12(s, 9H), 1.59(s, 3H), 7.46(brs, 1H), 7.66(d, 1H), 8.92(d, 1H), 9.36(s, 1H), 11.22(brs, 1H)

Cpd	1H-NMR
A-146	0.8-1.1(m, 7H), 1.9-2.1(m, 2H), 2.1-2.3(m, 1H), 7.65(d, 1H), 8.91(d, 1H), 9.31(s, 1H), 11.17(brs, 1H)
A-196	1.4-2.1(m, 10H), 7.66(d, 1H), 8.36(brs, 1H), 8.92(d, 1H), 9.37(s, 1H)
A-91	0.94(t, 3H), 1.59(s, 3H), 1.8-2.1(m, 2H), 7.66(s, 1H), 8.47(brs, 1H), 8.96(d, 1H), 9.36(s, 1H)
B-121	1.11(s, 9H), 1.57(s, 3H), 6.12(brs, 1H), 7.64(d, 1H), 8.90(d, 1H), 9.33(s, 1H), 10.67(brs, 1H)
B-201	3.18(s, 3H), 4.22(s, 2H), 7.61(s, 1H), 8.84(d, 1H), 9.2-9.4(m, 2H)
B-206	1.57(d, 3H), 3.18(s, 3H), 4.30(q, 1H), 7.62(d, 1H), 8.85(1H, d), 9.26(s, 1H), 9.34(brs, 1H)
B-221	0.99(d, 3H), 1.13(d, 3H), 2.2-2.5(m, 1H), 3.16(s, 3H), 4.12(d, 1H), 7.62(d, 1H), 8.85(d, 1H), 9.2-9.4(m, 2H)
B-246	2.9-3.1(m, 4H), 3.2-3.4(m, 1H), 4.4-4.5(m, 1H), 7.2-7.4(m, 5H), 7.58(d, 1H), 8.82(d, 1H), 9.15(s, 1H), 9.25(brs, 1H)
B-286	1.54(s, 6H), 3.18(s, 3H), 7.62(d, 1H), 8.85(d, 1H), 9.29(s, 1H), 9.33(brs, 1H)
B-439	1.46(s, 6H), 1.73(s, 9H), 7.62(d, 1H), 8.83(d, 1H), 9.24(s, 1H), 9.94(brs, 1H)
B-455	4.22(s, 2H), 4.3-4.4(m, 2H), 5.8-6.0(m, 1H), 7.61(d, 1H), 8.84(d, 1H), 9.22(s, 1H), 9.28(brs, 1H)
B-456	1.57(d, 3H), 4.2-4.4(m, 3H), 5.2-5.4(m, 2H), 5.8-6.0(m, 1H), 7.61(d, 1H), 8.84(d, 1H), 9.24(s, 1H), 9.35(brs, 1H)
B-459	0.99(d, 3H), 1.12(d, 3H), 2.2-2.5(m, 1H), 4.1-4.2(m, 1H), 4.2-4.4(m, 2H), 5.2-5.5(m, 2H), 5.7-6.0(m, 1H), 7.61(d, 1H), 8.84(d, 1H), 9.2-9.4(m, 2H)
B-464	3.0-3.4(m, 2H), 4.1-4.2(m, 2H), 4.4-4.6(m, 1H), 4.9-5.2(m, 2H), 5.5-5.7(m, 1H), 7.1-7.4(m, 5H), 7.58(d, 1H), 8.82(d, 1H), 9.14(s, 1H), 9.31(brs, 1H)
B-472	1.54(s, 6H), 4.2-4.3(m, 2H), 5.2-5.3(m, 2H), 5.8-6.0(m, 1H), 7.61(d, 1H), 8.83(d, 1H), 9.27(s, 1H), 9.35(brs, 1H)
B-527	1.52(s, 6H), 4.80(s, 3H), 7.2-7.5(m, 4H), 7.66(d, 1H), 8.88(d, 1H), 9.23(s, 1H), 9.40(brs, 1H)
B-536	3.79(s, 3H), 4.31(s, 2H), 4.44(s, 2H), 7.59(d, 1H), 8.84(d, 1H), 9.15(s, 1H), 9.28(brs, 1H)
B-541	1.45(s, 6H), 1.87(s, 6H), 4.70(s, 2H), 5.03(s, 2H), 7.1-7.4(m, 5H), 7.59(d, 1H), 8.83(d, 1H), 9.18(s, 1H), 9.56(brs, 1H)
B-86	1.58(s, 6H), 7.64(d, 1H), 8.89(d, 1H), 9.32(s, 1H), 10.58(brs, 1H)
B-87	1.61(s, 6H), 3.14(s, 3H), 7.65(d, 1H), 8.88(d, 1H), 9.26(s, 1H)
B-91	0.93(t, 3H), 1.56(s, 3H), 1.7-2.1(m, 2H), 6.37(brs, 1H), 7.64(d, 1H), 8.89(d, 1H), 9.30(s, 1H), 10.65(brs, 1H)
E-129	1.48(s, 6H), 2.62(s, 3H), 7.63(d, 1H), 8.88(d, 1H), 9.36(s, 1H), 11.23(brs, 1H)
E-130	1.54(s, 6H), 2.58(s, 3H), 3.19(s, 3H), 7.62(d, 1H), 8.84(d, 1H), 9.23(s, 1H)
E-135	1.74(s, 6H), 2.44(s, 6H), 7.61(d, 1H), 8.84(d, 1H), 9.04(s, 1H)
E-137	1.47(s, 6H), 3.84(d, 2H), 5.2-5.4(m, 2H), 5.8-6.1(m, 1H), 7.63(d, 1H), 8.87(d, 1H), 9.36(s, 1H), 11.18(brs, 1H)
E-137	0.73(t, 3H), 1.58(s, 3H), 1.8-2.0(m, 2H), 2.63(s, 3H), 7.62(d, 1H), 8.87(d,

Cpd	1H-NMR
	1H), 9.34(s, 1H), 11.22(brs, 1H)
E-138	0.68(t, 3H), 1.50(s, 3H), 1.8-2.2(m, 2H), 2.60(s, 1H), 3.18(s, 3H), 7.62(d, 1H), 8.84(d, 1H), 9.23(s, 1H)
E-143	0.71(t, 3H), 1.72(s, 3H), 2.1-2.3(m, 2H), 2.41(s, 3H), 2.45(s, 3H), 7.61(d, 1H), 8.83(d, 1H), 9.05(s, 1H)
E-185	1.06(s, 9H), 1.43(s, 3H), 2.62(s, 3H), 7.63(d, 1H), 8.87(d, 1H), 9.40(s, 1H), 11.39(brs, 1H)
E-325	1.3-2.0(m, 10H), 2.73(s, 3H), 7.58(d, 1H), 8.81(d, 1H), 9.29(s, 1H), 10.54(brs, 1H)
E-694	1.47(s, 6H), 2.17(s, 3H), 3.45(t, 2H), 4.38(t, 2H), 7.63(d, 1H), 8.88(d, 1H), 9.36(s, 1H), 11.18(brs, 1H)

According to a further feature of the present invention there is provided a method for the control of pests at a locus which comprises the application of an effective amount of a compound of formula (I) or a salt thereof. For this purpose, the said compound

5 is normally used in the form of a pesticidal composition (i.e. in association with compatible diluents or carriers and/or surface active agents suitable for use in pesticidal compositions), for example as hereinafter described.

The term "compound of the invention" as used hereinafter embraces a 3-pyridylcarboxamide of formula (I) as defined above and a pesticidally acceptable salt thereof.

One aspect of the present invention as defined above is a method for the control of pests at a locus. The locus includes, for example, the pest itself, the place (plant, field, forest, orchard, waterway, soil, plant product, or the like) where the pest resides or feeds, or a place susceptible to future infestation by the pest. The compound of the invention may therefore be applied directly to the pest, to the place where the pest resides or feeds, or to the place susceptible to future infestation by the pest. As is evident from the foregoing pesticidal uses, the present invention provides

15 pesticidally active compounds and methods of use of said compounds for the control of a number of pest species which includes: arthropods, especially insects or mites, or plant nematodes. The compound of the invention may thus be advantageously

20

employed in practical uses, for example, in agricultural or horticultural crops, in forestry, in veterinary medicine or livestock husbandry, or in public health.

The compounds of the invention may be used for example in the following applications and on the following pests:

- 5 For the control of soil insects, such as corn rootworm, termites (especially for protection of structures), root maggots, wireworms, root weevils, stalkborers, cutworms, root aphids, or grubs. They may also be used to provide activity against plant pathogenic nematodes, such as root-knot, cyst, dagger, lesion, or stem or bulb nematodes, or against mites. For the control of soil pests, for example corn
- 10 rootworm, the compounds are advantageously applied to or incorporated at an effective rate into the soil in which crops are planted or to be planted or to the seeds or growing plant roots.

In the area of public health, the compounds are especially useful in the control of many insects, especially filth flies or other Dipteran pests, such as houseflies,

- 15 stableflies, soldierflies, hornflies, deerflies, horseflies, midges, punkies, blackflies, or mosquitoes.

In the protection of stored products, for example cereals, including grain or flour, groundnuts, animal feedstuffs, timber or household goods, e.g. carpets and textiles, compounds of the invention are useful against attack by arthropods, more especially

- 20 beetles, including weevils, moths or mites, for example *Ephestia* spp. (flour moths), *Anthrenus* spp. (carpet beetles), *Tribolium* spp. (flour beetles), *Sitophilus* spp. (grain weevils) or *Acarus* spp. (mites).

In the control of cockroaches, ants or termites or similar arthropod pests in infested domestic or industrial premises or in the control of mosquito larvae in waterways, wells, reservoirs or other running or standing water.

- 25 For the treatment of foundations, structures or soil in the prevention of the attack on building by termites, for example, *Reticulitermes* spp., *Heterotermes* spp., *Coptotermes* spp..

In agriculture against adults, larvae and eggs of Lepidoptera (butterflies and moths), e.g. *Heliothis* spp. such as *Heliothis virescens* (tobacco budworm), *Heliothis*

- 30 *armigera* and *Heliothis zea*. Against adults and larvae of Coleoptera (beetles) e.g. *Anthonomus* spp. e.g. *grandis* (cotton boll weevil), *Leptinotarsa decemlineata*

(Colorado potato beetle), *Diabrotica* spp. (corn rootworms). Against Heteroptera (Hemiptera and Homoptera) e.g. *Psylla* spp., *Bemisia* spp., *Trialeurodes* spp., *Aphis* spp., *Myzus* spp., *Megoura viciae*, *Phylloxera* spp., *Nephrotettix* spp. (rice leaf hoppers), *Nilaparvata* spp., *Pseudococcus* spp., and *Coccus* spp..

- 5 Against Diptera e.g. *Musca* spp.. Against Thysanoptera such as *Thrips tabaci*. Against Orthoptera such as *Locusta* and *Schistocerca* spp., (locusts and crickets) e.g. *Gryllus* spp., and *Acheta* spp. for example, *Blatta orientalis*, *Periplaneta americana*, *Blatella germanica*, *Locusta migratoria migratorioides*, and *Schistocerca gregaria*. Against Collembola e.g. *Periplaneta* spp. and *Blatella* spp. (roaches).
- 10 Against arthropods of agricultural significance such as Acari (mites) e.g. *Acarus siro*, *Argas* spp., *Ornithodoros* spp., *Dermanyssus gallinae*, *Eriophyes ribis*, *Phyllocoptura oleivora*, *Boophilus* spp., *Rhipicephalus* spp., *Amblyomma* spp., *Hyalomma* spp., *Ixodes* spp., *Psoroptes* spp., *Chorioptes* spp., *Sarcoptes* spp., *Tarsonemus* spp., *Bryobia praetiosa*, *Panonychus* spp., *Tetranychus* spp.,
- 15 *Eotetranychus* spp., *Oligonychus* spp., *Eutetranychus* spp.
From the order of the Isopoda, for example, *Oniscus aselus*, *Armadium vulgare*, *Porcellio scaber*.
Against nematodes which attack plants or trees of importance to agriculture, forestry or horticulture either directly or by spreading bacterial, viral, mycoplasma or fungal
- 20 diseases of the plants. The plant-parasitic nematodes which can be controlled in accordance with the invention include, for example, the root-parasitic soil-dwelling nematodes such as, for example, those of the genera *Meloidogyne* (root knot nematodes, such as *Meloidogyne incognita*, *Meloidogyne hapla* and *Meloidogyne javanica*), *Heterodera* and *Globodera* (cyst-forming nematodes, such as *Globodera rostochiensis*, *Globodera pallida*, *Heterodera trifolii*) and of the genera *Radopholus*, such as *Radopholus similis*, *Pratylenchus* such as *Pratylenchus neglectus*, *Pratylenchus penetrans* and *Pratylenchus curvitatus*;
- 25 *Tylenchulus* such as *Tylenchulus semipenetrans*, *Tylenchorhynchus*, such as *Tylenchorhynchus dubius* and *Tylenchorhynchus claytoni*, *Rotylenchus* such as *Rotylenchus robustus*, *Heliocotylenchus* such as *Heliocotylenchus multicinctus*,
- 30 *Belonoaimus* such as *Belonoaimus longicaudatus*, *Longidorus* such as *Longidorus*

elongatus, *Trichodorus* such as *Trichodorus primitivus* and *Xiphinema* such as *Xiphinema index*.

Other nematode genera which can be controlled using the compounds according to

5 the invention are *Ditylenchus* (stem parasites, such as *Ditylenchus dipsaci* and *Ditylenchus destructor*), *Aphelenchoides* (foliar nematodes, such as *Aphelenchoides ritzemabosi*) and *Anguina* (seed nematodes, such as *Anguina tritici*).

In the field of veterinary medicine or livestock husbandry or in the maintenance of public health against arthropods which are parasitic internally or externally upon

10 vertebrates, particularly warm-blooded vertebrates, for example domestic animals, e.g. cattle, sheep, goats, equines, swine, poultry, dogs or cats, for example *Acarina*, including ticks (e.g. *Ixodes* spp., *Boophilus* spp. e.g. *Boophilus microplus*, *Rhipicephalus* spp. e.g. *Rhipicephalus appendiculatus* *Ornithodoros* spp. (e.g. *Ornithodoros moubata*) and mites (e.g. *Damalinia* spp.); fleas (e.g. *Ctenocephalides*

15 *felis* and *Ctenocephalides canis*); *Diptera* (e.g. *Aedes* spp., *Anopheles* spp., *Musca* spp., *Hypoderma* spp.); *Hemiptera*; *Dictyoptera* (e.g. *Periplaneta* spp., *Blatella* spp.); *Hymenoptera*; for example against infections of the gastro-intestinal tract caused by parasitic nematode worms, for example members of the family *Trichostrongylidae*.

From the class of the helminths, for example, *Haemonchus*, *Trichostrongylus*,
20 *Ostertagia*, *Cooperia*, *Chabertia*, *Strongyloides*, *Oesophagostomum*, *Hyostrongylus*, *Ancylostoma*, *Ascaris* and *Heterakis* and also *Fasciola*.

From the class of the *Gastropoda*, for example, *Deroceras* spp., *Arion* spp.,

Lymnaea spp., *Galba* spp., *Succinea* spp., *Biomphalaria* spp., *Bulinus* spp.,

25 *Oncomelania* spp.

From the class of the *Bivalva*, for example, *Dreissena* spp.

Furthermore against *Protozoa* such as *Eimeria*.

The preferred insect species which are controlled are sucking insect pests such as

30 aphids (e.g. *Aphis fabae*, *Aphis pomi*, *Aphis spiraecola*, *Aphis gossypii*, *Aphis nasturtii*, *Dysaphis plantaginea*, *Eriosoma* spp., *Rhopalosiphum padi*, *Acyrthosiphon pisum*, *Pemphigus bursarius*, *Myzus persicae*, *Myzus nicotianae*, *Myzus euphorbiae*,

Phylloxera spp., Toxoptera spp., Brevicoryne brassicae, Macrosiphum avenae, Macrosiphum euphorbiae, Nasonovia ribisnigri, Sitobion avenae, Brachycaudus helichrysi or Phorodon humuli), cicadas (Idioscopus clypealis, Scaphoides titanus, Empoasca onuki, Empoasca vitis, Empoasca devastans, Empoasca libyca,

5 Empoasca biguttula, Empoasca facialis or Erythroneura spp), thrips (Hercinothrips femoralis, Scirtothrips aurantii, Scirtothrips dorsalis, Frankliniella schultzei, Frankliniella fusca, Frankliniella occidentalis, Frankliniella tritici, Kakothrips spp., Thrips oryzae, Thrips palmi or Thrips tabaci) or whiteflies (Aleurodes brassicae, Bemisia tabaci, Trialeurodes vaporariorum or Aleurodes proletella), or mealybugs
10 (Dysmicoccus spp., Planococcus spp. or Phenacoccus spp.).

In practical use for the control of arthropods, especially insects or acarids, or nematode pests of plants, a method, for example, comprises applying to the plants or to the medium in which they grow an effective amount of a compound of the

15 invention. For such a method, the compound of the invention is generally applied to the locus in which the arthropod or nematode infestation is to be controlled at an effective rate in the range of about 2g to about 1kg of the active compound per hectare of locus treated. Under ideal conditions, depending on the pest to be controlled, a lower rate may offer adequate protection. On the other hand, adverse
20 weather conditions, resistance of the pest or other factors may require that the active ingredient be used at higher rates. The optimum rate depends usually upon a number of factors, for example, the type of pest being controlled, the type or the growth stage of the infested plant, the row spacing or also the method of application. Preferably an effective rate range of the active compound is from about 10g/ha to
25 about 400g/ha, more preferably from about 50g/ha to about 200 g/ha.

When a pest is soil-borne, the active compound generally in a formulated composition, is distributed evenly over the area to be treated (ie, for example broadcast or band treatment) in any convenient manner and is applied at rates from about 10g/ha to about 400g ai/ha, preferably from about 50g/ha to about 200g ai/ha.

30 When applied as a root dip to seedlings or drip irrigation to plants the liquid solution or suspension contains from about 0.075 to about 1000mg ai/l, preferably from about 25 to about 200mg ai/l. Application may be made, if desired, to the field or crop-

growing area generally or in close proximity to the seed or plant to be protected from attack. The compound of the invention can be washed into the soil by spraying with water over the area or can be left to the natural action of rainfall. During or after application, the formulated compound can, if desired, be distributed mechanically in

5 the soil, for example by ploughing, disking, or use of drag chains. Application can be prior to planting, at planting, after planting but before sprouting has taken place, or after sprouting.

The compound of the invention and methods of control of pests therewith are of particular value in the protection of field, forage, plantation, glasshouse, orchard or 10 vineyard crops, of ornamentals, or of plantation or forest trees, for example: cereals (such as wheat, barley, rye, oats, millet or rice), cotton, vegetables (such as peppers, potatoes, tomatoes or peas), field crops (such as sugar beets, soybeans or oil seed rape), grassland or forage crops (such as maize or sorghum), cassava, orchards or groves (such as of stone or pit fruit or citrus), ornamental plants, flowers or 15 vegetables or shrubs under glass or in gardens or parks, or forest trees (both deciduous and evergreen) in forests, plantations or nurseries.

They are also valuable in the protection of timber (standing, felled, converted, stored or structural) from attack, for example, by sawflies or beetles or termites.

They have applications in the protection of stored products such as grains, fruits, 20 nuts, spices or tobacco, whether whole, milled or compounded into products, from moth, beetle, mite or grain weevil attack. Also protected are stored animal products such as skins, hair, wool or feathers in natural or converted form (e.g. as carpets or textiles) from moth or beetle attack as well as stored meat, fish or grains from beetle, mite or fly attack.

25 Additionally, the compound of the invention and methods of use thereof are of particular value in the control of arthropods or helminths which are injurious to, or spread or act as vectors of diseases domestic animals, for example those hereinbefore mentioned, and more especially in the control of ticks, mites, lice, fleas, midges, or biting, nuisance or myiasis flies. The compounds of the invention are 30 particularly useful in controlling arthropods or helminths which are present inside domestic host animals or which feed in or on the skin or suck the blood of the

animal, for which purpose they may be administered orally, parenterally, percutaneously or topically.

The compositions hereinafter described for application to growing crops or crop growing loci or as a seed dressing may, in general, alternatively be employed in the

5 protection of stored products, household goods, property or areas of the general environment. Suitable means of applying the compounds of the invention include: to growing crops as foliar sprays (for example as an in-furrow spray), dusts, granules, fogs or foams or also as suspensions of finely divided or encapsulated compositions as soil or root treatments by liquid drenches, dusts, granules, smokes 10 or foams; to seeds of crops via application as seed dressings by liquid slurries or dusts;

to animals infested by or exposed to infestation by arthropods or helminths, by parenteral, oral or topical application of compositions in which the active ingredient exhibits an immediate and/or prolonged action over a period of time against the 15 arthropods or helminths, for example by incorporation in feed or suitable orally-ingestible pharmaceutical formulations, edible baits, salt licks, dietary supplements, pour-on formulations, sprays, baths, dips, showers, jets, dusts, greases, shampoos, creams, wax smears or livestock self-treatment systems;

to the environment in general or to specific locations where pests may lurk, including 20 stored products, timber, household goods, or domestic or industrial premises, as sprays, fogs, dusts, smokes, wax-smears, lacquers, granules or baits, or in tricklefeeds to waterways, wells, reservoirs or other running or standing water.

25 The compounds of the formula (I) can also be employed for controlling harmful organisms in crops of known genetically engineered plants or genetically engineered plants yet to be developed. As a rule, the transgenic plants are distinguished by especially advantageous properties, for example by resistances to particular crop protection agents, resistances to plant diseases or pathogens of plant diseases, such as particular insects or microorganisms such as fungi, bacteria or viruses.

30 Other particular properties concern, for example, the harvested material with regard to quantity, quality, storage properties, composition and specific constituents. Thus, transgenic plants are known where the starch content is increased, or the starch

quality is altered, or where the harvested material has a different fatty acid composition.

The use in economically important transgenic crops of useful plants and ornamentals
5 is preferred, for example of cereals such as wheat, barley, rye, oats, millet, rice, cassava and maize or else crops of sugar beet, cotton, soya, oilseed rape, potatoes, tomatoes, peas and other types of vegetables.

When used in transgenic crops, in particular those which have resistances to insects,
10 effects are frequently observed, in addition to the effects against harmful organisms to be observed in other crops, which are specific for application in the transgenic crop in question, for example an altered or specifically widened spectrum of pests which can be controlled, or altered application rates which may be employed for application.

15 The invention therefore also relates to the use of compounds of the formula (I) for controlling harmful organisms in transgenic crop plants.

In addition to their lethal effect on pests, the compounds of the formula (I) also have
20 a pronounced repellent effect.

A repellent for the purpose of the invention is a substance or substance mixture which has a warding-off or fending-off effect on other life organisms, in particular harmful pests and nuisance pests. The term also encompasses effects such as the
25 antifeeding effect, where the intake of feed is disturbed or prevented (antifeedant effect), suppression of oviposition, or an effect on the development of the population.

The invention therefore also provides the use of compounds of the formula (I) or their salts for achieving the abovementioned effects, in particular in the case of the pests
30 stated in the biological examples.

The invention also provides a method for fending off, or warding off, harmful organisms, where one or more compounds of the formula (I) or their salts are applied to the site from which the harmful organisms are to be fended off or warded off.

5 In the case of a plant, application may mean, for example, a treatment of the plant, or also of the seed.

As regards the effect on populations, it is interesting to note that effects can also be observed in succession during the development of a population, where summation 10 may take place. In such a case, the individual effect itself may only have an efficacy of markedly less than 100% but in total an efficacy of 100% is still achieved in the end.

Moreover, the compounds of the formula (I) or their salts are distinguished by the 15 fact that the composition is usually applied earlier than in the case of a direct control, if the abovementioned effects are to be exploited. The effect frequently lasts over a long period, so that a duration of action of over 2 months is achieved.

The effects are observed in insects, arachnids and others of the abovementioned 20 pests.

According to a further feature of the present invention there is provided a pesticidal composition comprising one or more compounds of the invention as defined above, in association with, and preferably homogeneously dispersed in one or more 25 compatible pesticidally acceptable diluents or carriers and/or surface active agents [i.e. diluents or carriers and/or surface active agents of the type generally accepted in the art as being suitable for use in pesticidal compositions and which are compatible with compounds of the invention].

In practice, the compounds of the invention most-frequently form parts of 30 compositions. These compositions can be employed to control arthropods, especially insects and acarids, or helminths such as plant nematodes. The compositions may be of any type known in the art suitable for application to the

desired pest in any premises or indoor or outdoor area. These compositions contain at least one compound of the invention as the active ingredient in combination or association with one or more other compatible components which are for example, solid or liquid carriers or diluents, adjuvants, surface-active-agents, or the like

5 appropriate for the intended use and which are agronomically or medicinally acceptable. These compositions, which may be prepared by any manner known in the art, likewise form a part of this invention.

Tackifiers such as carboxymethylcellulose and natural and synthetic polymers in the 10 form of powders, granules or latices, such as gum arabic, polyvinyl alcohol and polyvinyl acetate, or else natural phospholipids such as cephalins and lecithins and synthetic phospholipids can be used in the formulations. Other possible additives are mineral and vegetable oils.

15 It is possible to use colorants such as inorganic pigments, for example iron oxide, titanium oxide and Prussian Blue, and organic colorants such as alizarin colorants, azo colorants and metal phthalocyanine colorants, and trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum and zinc.

20 The formulations generally comprise between 0.1 and 95% by weight of active compound, preferably between 0.5 and 90%.

The active compound according to the invention can be present in its commercially 25 available formulations and in the use forms prepared from these formulations as a mixture with other active compounds, such as insecticides, attractants, sterilants, bactericides, acaricides, nematicides, fungicides, safeners, growth-regulating compounds or herbicides. The insecticides include, for example, phosphoric esters, carbamates, carboxylic esters, chlorinated hydrocarbons, phenylureas, compounds produced by microorganisms, *inter alia*.

30

Particularly suitable mixing components are, for example, the following compounds:

Fungicides:

2-phenylphenol; 8-hydroxyquinoline sulfate; acibenzolar-S-methyl; aldimorph; amidoflumet; ampropylfos; ampropylfos-potassium; andoprim; anilazine; azaconazole; azoxystrobin; benalaxyil; benodanil; benomyl; benthiavalicarb-isopropyl; benzamacril; benzamacril-isobutyl; bilanafos; binapacryl; biphenyl; 5 bitertanol; blasticidin-S; bromuconazole; bupirimate; buthiobate; butylamine; calcium polysulphide; capsimycin; captafol; captan; carbendazim; carboxin; carpropamid; carvone; chinomethionat; chlobenthiazole; chlorfenazole; chloroneb; chlorothalonil; chlozolinate; clozylacon; cyazofamid; cyflufenamid; cymoxanil; cyproconazole; cyprodinil; cyprofuram; Dagger G; debacarb; dichlofuanid; dichlone; dichlorophen; 10 diclocymet; diclomezine; dicloran; diethofencarb; difenoconazole; diflumetorim; dimethirimol; dimethomorph; dimoxystrobin; diniconazole; diniconazole-M; dinocap; diphenylamine; dipyrithione; ditalimfos; dithianon; dodine; drazoxolon; edifenphos; epoxiconazole; ethaboxam; ethirimol; etridiazole; famoxadone; fenamidone; fenapanil; fenarimol; fenbuconazole; fenfuram; fenhexamid; fenitropan; fenoxyanil; 15 fenpiclonil; fenpropidin; fenpropimorph; ferbam; fluazinam; flubenzimine; fludioxonil; flumetover; flumorph; fluoromide; fluoxastrobin; fluquinconazole; flurprimidol; flusilazole; flusulfamide; flutolanil; flutriafol; folpet; fosetyl-Al; fosetyl-sodium; fuberidazole; furalaxyil; furametpyr; furcarbanil; furmecyclox; guazatine; hexachlorobenzene; hexaconazole; hymexazole; imazalil; imibenconazole; 20 iminoctadine triacetate; iminoctadine tris(albesilate); iodocarb; ipconazole; iprobenfos; iprodione; iprovalicarb; irumamycin; isoprothiolane; isovaledione; kasugamycin; kresoxim-methyl; mancozeb; maneb; meferimzone; mepanipyrim; mepronil; metalaxyil; metalaxyil-M; metconazole; methasulfocarb; methfuroxam; metiram; metominostrobin; metsulfovax; mildiomycin; myclobutanil; myclozolin; 25 natamycin; nicobifen; nitrothal-isopropyl; noviflumuron; nuarimol; ofurace; orysastrobin; oxadixyl; oxolinic acid; oxpoconazole; oxycarboxin; oxyfenthiin; paclobutrazole; pefurazoate; penconazole; pencycuron; phosdiphen; phthalide; picoxystrobin; piperalin; polyoxins; polyoxorim; probenazole; prochloraz; procymidone; propamocarb; propanosine-sodium; propiconazole; propineb; 30 proquinazid; prothioconazole; pyraclostrobin; pyrazophos; pyrifenoxy; pyrimethanil; pyroquilon; pyroxyfur; pyrrolnitrin; quinconazole; quinoxifen; quintozene; simeconazole; spiroxamine; sulfur; tebuconazole; tecloftalam; tecnazene; tetcyclacis;

tetraconazole; thiabendazole; thicyofen; thifluzamide; thiophanate-methyl; thiram; tioxymid; tolclofos-methyl; tolylfluanid; triadimefon; triadimenol; triazbutil; triazoxide; tricyclamide; tricyclazole; tridemorph; trifloxystrobin; triflumizole; triforine; triticonazole; uniconazole; validamycin A; vinclozolin; zineb; ziram; zoxamide; (2S)-

5 N-[2-[4-[[3-(4-chlorophenyl)-2-propynyl]oxy]-3-methoxyphenyl]ethyl]-3-methyl-2-[(methylsulfonyl)amino]butanamide; 1-(1-naphthalenyl)-1H-pyrrole-2,5-dione; 2,3,5,6-tetrachloro-4-(methylsulfonyl)pyridine; 2-amino-4-methyl-N-phenyl-5-thiazolecarboxamide; 2-chloro-N-(2,3-dihydro-1,1,3-trimethyl-1H-inden-4-yl)-3-pyridinecarboxamide; 3,4,5-trichloro-2,6-pyridinedicarbonitrile; actinovate; cis-1-(4-chlorophenyl)-2-(1H-1,2,4-triazol-1-yl)cycloheptanol; methyl (2,3-dihydro-2,2-dimethyl-1H-inden-1-yl)-1H-imidazole-5-carboxylate; monopotassium carbonate; N-(6-methoxy-3-pyridinyl)-cyclopropanecarboxamide; N-butyl-8-(1,1-dimethylethyl)-1-oxaspiro[4.5]decane-3-amine; sodium tetrathiocarbonate;

10 and copper salts and preparations, such as Bordeaux mixture; copper hydroxide; copper naphthenate; copper oxychloride; copper sulfate; cufraneb; copper oxide; mancopper; oxine-copper.

15

Bactericides:

20 bronopol, dichlorophen, nitrapyrin, nickel dimethyldithiocarbamate, kasugamycin, octhilinone, furancarboxylic acid, oxytetracyclin, probenazole, streptomycin, tecloftalam, copper sulphate and other copper preparations.

Insecticides / acaricides / nematicides:

25 abamectin, ABG-9008, acephate, acequinocyl, acetamiprid, acetoprole, acrinathrin, AKD-1022, AKD-3059, AKD-3088, alanycarb, aldicarb, aldoxycarb, allethrin, allethrin 1R-isomers, alpha-cypermethrin (alphamethrin), amidoflumet, aminocarb, amitraz, avermectin, AZ-60541, azadirachtin, azamethiphos, azinphos-methyl, azinphos-ethyl, azocyclotin,

30 Bacillus popilliae, Bacillus sphaericus, Bacillus subtilis, Bacillus thuringiensis, Bacillus thuringiensis strain EG-2348, Bacillus thuringiensis strain GC-91, Bacillus

thuringiensis strain NCTC-11821, baculoviruses, Beauveria bassiana, Beauveria tenella, bendiocarb, benfuracarb, bensultap, benzoximate, beta-cyfluthrin, beta-cypermethrin, bifenazate, bifenthrin, binapacryl, bioallethrin, bioallethrin-S-cyclopentyl-isomer, bioethanomethrin, biopermethrin, bioresmethrin, bistrifluron,

5 BPMC, brofenprox, bromophos-ethyl, bromopropylate, bromfenvinfos (-methyl), BTG-504, BTG-505, bufencarb, buprofezin, butathiofos, butocarboxim, butoxycarboxim, butylpyridaben, cadusafos, camphechlor, carbaryl, carbofuran, carbophenothion, carbosulfan, cartap, CGA-50439, chinomethionat, chlordane, chlordimeform, chloethocarb, chlor-10 ethoxyfos, chlорfenapyr, chlорfenvinphos, chlorfluazuron, chlormephos, chlorbenzilate, chloropicrin, chlorproxyfen, chlorpyrifos-methyl, chlorpyrifos (-ethyl), chlovaporthrin, chromafenozone, cis-cypermethrin, cis-resmethrin, cis-permethrin, cloocythrin, cloethocarb, clofentezine, clothianidin, clothiazaben, codlemone, coumaphos, cyanofenphos, cyanophos, cyclopene, cycloprothrin, Cydia pomonella, 15 cyfluthrin, cyhalothrin, cyhexatin, cypermethrin, cyphenothon (1R-trans-isomer), cyromazine,

DDT, deltamethrin, demeton-S-methyl, demeton-S-methylsulphone, diafenthiuron, dialifos, diazinon, dichlofenthion, dichlorvos, dicofol, dicrotophos, dicyclanil, diflu-20 benzuron, dimethoate, dimethylvinphos, dinobuton, dinocap, dinetofuran, diofenolan, disulfoton, docusat-sodium, dofenapyn, DOWCO-439,

eflusilanate, emamectin, emamectin-benzoate, empenthrin (1R-isomer), endosulfan, Entomophthora spp., EPN, esfenvalerate, ethiofencarb, ethiprole, ethion, 25 ethoprophos, etofenprox, etoxazole, etrimfos,

famphur, fenamiphos, fenazaquin, fenbutatin oxide, fenfluthrin, fenitrothion, fenobucarb, fenothiocarb, fenoxacrim, fenoxy carb, fenpropothrin, fenpyrad, fenpyrithrin, fenpyroximate, fensulfothion, fenthion, fentrifanil, fenvalerate, fipronil, 30 flonicamid, fluacrypyrim, fluazuron, flubenzimine, flubrocythrinate, flucycloxuron, flucythrinate, flufenerim, flufenoxuron, flufenprox, flumethrin, flupyrazofos, flutenzin (flufenzine), fluvalinate, fonofos, formetanate, formothion, fosmethilan, fosthiazate,

fubfenprox (fluproxyfen), furathiocarb,

gamma-HCH, gossyplure, grandlure, granulosis viruses,

5 halfenprox, halofenozone, HCH, HCN-801, heptenophos, hexaflumuron, hexythiazox, hydramethylnone, hydroprene,

IKA-2002, imidacloprid, imiprothrin, indoxacarb, iodofenphos, iprobenfos, isazofos, isofenphos, isoprocarb, isoxathion, ivermectin,

10

japonilure,

kadethrin, nuclear polyhedrosis viruses, kinoprene,

15 lambda-cyhalothrin, lindane, lufenuron,

malathion, mecarbam, mesulfenfos, metaldehyde, metam-sodium, methacrifos, methamidophos, Metharhizium anisopliae, Metharhizium flavoviride, methidathion, methiocarb, methomyl, methoprene, methoxychlor, methoxyfenozide, metolcarb,

20 metoxadiazone, mevinphos, milbemectin, milbemycin, MKI-245, MON-45700, monocrotophos, moxidectin, MTI-800,

naled, NC-104, NC-170, NC-184, NC-194, NC-196, niclosamide, nicotine, niten-pyram, nithiazine, NNI-0001, NNI-0101, NNI-0250, NNI-9768, novaluron, novi-25 flumuron,

OK-5101, OK-5201, OK-9601, OK-9602, OK-9701, OK-9802, omethoate, oxamyl, oxydemeton-methyl,

30 Paecilomyces fumosoroseus, parathion-methyl, parathion (-ethyl), permethrin (cis-, trans-), petroleum, PH-6045, phenothrin (1R-trans isomer), phentoate, phorate, phosalone, phosmet, phosphamidon, phosphocarb, phoxim, piperonyl butoxide,

pirimicarb, pirimiphos-methyl, pirimiphos-ethyl, prallethrin, profenofos, promecarb, propaphos, propargite, propetamphos, propoxur, prothiofos, prothoate, protifentbute, pymetrozine, pyraclofos, pyresmethrin, pyrethrum, pyridaben, pyridalyl, pyridaphenthion, pyridathion, pyrimidifen, pyriproxyfen,

5

quinalphos,

resmethrin, RH-5849, ribavirin, RU-12457, RU-15525,

S-421, S-1833, salithion, sebufos, SI-0009, silafluofen, spinosad, spirodiclofen,

10 spiromesifen, sulfluramid, sulfotep, sulprofos, SZI-121,

tau-fluvalinate, tebufenozide, tebufenpyrad, tebupirimfos, teflubenzuron, tefluthrin, temephos, temivinphos, terbam, terbufos, tetrachlorvinphos, tetradifon, tetramethrin, tetramethrin (1R-isomer), tetrasul, theta-cypermethrin, thiacloprid, thiamethoxam,

15 thiapronil, thiatriphos, thiocyclam hydrogenoxalate, thiodicarb, thiofanox, thiometon, thiosultap-sodium, thuringiensin, tolfenpyrad, tralocythrin, tralomethrin, transfluthrin, triarathene, triazamate, triazophos, triazuron, trichlophenidine, trichlorfon, triflumuron, trimethacarb,

20 vamidothion, vaniliprole, verbutin, *Verticillium lecanii*,

WL-108477, WL-40027,

YI-5201, YI-5301, YI-5302,

25

XMC, xylylcarb,

ZA-3274, zeta-cypermethrin, zolaprofos, ZXI-8901,

30 the compound 3-methylphenyl propylcarbamate (tsumacide Z),

the compound 3-(5-chloro-3-pyridinyl)-8-(2,2,2-trifluoroethyl)-8-azabicyclo[3.2.1]-

octane-3-carbonitrile (CAS-Reg. No. 185982-80-3) and the corresponding 3-endo-isomer (CAS-Reg. No. 185984-60-5) (cf. WO-96/37494, WO-98/25923),

5 and preparations which comprise insecticidally active plant extracts, nematodes, fungi or viruses.

The abovementioned components for combinations are known active substances, many of which are described in Ch.R Worthing, S.B. Walker, The Pesticide Manual, 12th Edition, British Crop Protection Council, Farnham 2000.

10

The effective use doses of the compounds employed in the invention can vary within wide limits, particularly depending on the nature of the pest to be eliminated or degree of infestation, for example, of crops with these pests. In general, the compositions according to the invention usually contain about 0.05 to about 95% (by weight) of one or more active ingredients according to the invention, about 1 to about 95% of one or more solid or liquid carriers and, optionally, about 0.1 to about 50% of one or more other compatible components, such as surface-active agents or the like. In the present account, the term "carrier" denotes an organic or inorganic ingredient, natural or synthetic, with which the active ingredient is combined to facilitate its application, for example, to the plant, to seeds or to the soil. This carrier is therefore generally inert and it must be acceptable (for example, agronomically acceptable, particularly to the treated plant).

15

The carrier may be a solid, for example, clays, natural or synthetic silicates, silica, resins, waxes, solid fertilizers (for example ammonium salts), ground natural minerals, such as kaolins, clays, talc, chalk, quartz, attapulgite, montmorillonite, bentonite or diatomaceous earth, or ground synthetic minerals, such as silica, alumina, or silicates especially aluminium or magnesium silicates. As solid carriers for granules the following are suitable: crushed or fractionated natural rocks such as calcite, marble, pumice, sepiolite and dolomite; synthetic granules of inorganic or organic meals; granules of organic material such as sawdust, coconut shells, corn cobs, corn husks or tobacco stalks; kieselguhr, tricalcium phosphate, powdered cork, or absorbent carbon black; water soluble polymers, resins, waxes; or solid fertilizers.

20

25

30

Such solid compositions may, if desired, contain one or more compatible wetting, dispersing, emulsifying or colouring agents which, when solid, may also serve as a diluent.

The carrier may also be liquid, for example: water; alcohols, particularly butanol or

5 glycol, as well as their ethers or esters, particularly methylglycol acetate; ketones, particularly acetone, cyclohexanone, methylethyl ketone, methylisobutylketone, or isophorone; petroleum fractions such as paraffinic or aromatic hydrocarbons, particularly xylenes or alkyl naphthalenes; mineral or vegetable oils; aliphatic chlorinated hydrocarbons, particularly trichloroethane or methylene chloride;

10 aromatic chlorinated hydrocarbons, particularly chlorobenzenes; water-soluble or strongly polar solvents such as dimethylformamide, dimethyl sulphoxide, or N-methylpyrrolidone; liquefied gases; or the like or a mixture thereof.

The surface-active agent may be an emulsifying agent, dispersing agent or wetting agent of the ionic or non-ionic type or a mixture of such surface-active agents.

15 Amongst these are e.g., salts of polyacrylic acids, salts of lignosulphonic acids, salts of phenolsulphonic or naphthalenesulphonic acids, polycondensates of ethylene oxide with fatty alcohols or fatty acids or fatty esters or fatty amines, substituted phenols (particularly alkylphenols or arylphenols), salts of sulphosuccinic acid esters, taurine derivatives (particularly alkyltaurates), phosphoric esters of alcohols or of

20 polycondensates of ethylene oxide with phenols, esters of fatty acids with polyols, or sulphate, sulphonate or phosphate functional derivatives of the above compounds.

The presence of at least one surface-active agent is generally essential when the active ingredient and/or the inert carrier are only slightly water soluble or are not water soluble and the carrier agent of the composition for application is water.

25 Compositions of the invention may further contain other additives such as adhesives or colorants. Adhesives such as carboxymethylcellulose or natural or synthetic polymers in the form of powders, granules or lattices, such as arabic gum, polyvinyl alcohol or polyvinyl acetate, natural phospholipids, such as cephalins or lecithins, or synthetic phospholipids can be used in the formulations. It is possible to use

30 colorants such as inorganic pigments, for example: iron oxides, titanium oxides or Prussian Blue; organic dyestuffs, such as alizarin dyestuffs, azo dyestuffs or metal

phthalocyanine dyestuffs; or trace nutrients such as salts of iron, manganese, boron, copper, cobalt, molybdenum or zinc.

For their agricultural application, the compounds of the invention are therefore generally in the form of compositions, which are in various solid or liquid forms.

- 5 Solid forms of compositions which can be used are dusting powders (with a content of the compound of the invention, ranging up to 80%), wettable powders or granules (including water dispersible granules), particularly those obtained by extrusion, compacting, impregnation of a granular carrier, or granulation starting from a powder (the content of the compound of the invention, in these wettable powders or granules
- 10 being between about 0.5 and about 80%). Solid homogenous or heterogenous compositions containing one or more compounds of the invention, for example granules, pellets, briquettes or capsules, may be used to treat standing or running water over a period of time. A similar effect may be achieved using trickle or intermittent feeds of water dispersible concentrates as described herein.
- 15 Liquid compositions, for example, include aqueous or non-aqueous solutions or suspensions (such as emulsifiable concentrates, emulsions, flowables, dispersions, or solutions) or aerosols. Liquid compositions also include, in particular, emulsifiable concentrates, dispersions, emulsions, flowables, aerosols, wettable powders (or powder for spraying), dry flowables or pastes as forms of compositions which are
- 20 liquid or intended to form liquid compositions when applied, for example as aqueous sprays (including low and ultra-low volume) or as fogs or aerosols.

Liquid compositions, for example, in the form of emulsifiable or soluble concentrates most frequently comprise about 5 to about 80% by weight of the active ingredient, while the emulsions or solutions which are ready for application contain, in their

- 25 case, about 0.01 to about 20% of the active ingredient. Besides the solvent, the emulsifiable or soluble concentrates may contain, when required, about 2 to about 50% of suitable additives, such as stabilizers, surface-active agents, penetrating agents, corrosion inhibitors, colorants or adhesives. Emulsions of any required concentration, which are particularly suitable for application, for example, to plants,
- 30 may be obtained from these concentrates by dilution with water. These compositions are included within the scope of the compositions which may be

employed in the present invention. The emulsions may be in the form of water-in-oil or oil-in-water type and they may have a thick consistency.

The liquid compositions of this invention may, in addition to normal agricultural use applications be used for example to treat substrates or sites infested or liable to

5 infestation by arthropods (or other pests controlled by compounds of this invention) including premises, outdoor or indoor storage or processing areas, containers or equipment or standing or running water.

All these aqueous dispersions or emulsions or spraying mixtures can be applied, for example, to crops by any suitable means, chiefly by spraying, at rates which are

10 generally of the order of about 100 to about 1,200 liters of spraying mixture per hectare, but may be higher or lower (eg. low or ultra-low volume) depending upon the need or application technique. The compound or compositions according to the invention are conveniently applied to vegetation and in particular to roots or leaves having pests to be eliminated. Another method of application of the compounds or
15 compositions according to the invention is by chemigation, that is to say, the addition of a formulation containing the active ingredient to irrigation water. This irrigation may be sprinkler irrigation for foliar pesticides or it can be ground irrigation or underground irrigation for soil or for systemic pesticides.

The concentrated suspensions, which can be applied by spraying, are prepared so
20 as to produce a stable fluid product which does not settle (fine grinding) and usually contain from about 10 to about 75% by weight of active ingredient, from about 0.5 to about 30% of surface-active agents, from about 0.1 to about 10% of thixotropic agents, from about 0 to about 30% of suitable additives, such as anti-foaming agents, corrosion inhibitors, stabilizers, penetrating agents, adhesives and, as the
25 carrier, water or an organic liquid in which the active ingredient is poorly soluble or insoluble. Some organic solids or inorganic salts may be dissolved in the carrier to help prevent settling or as antifreezes for water.

The wettable powers (or powder for spraying) are usually prepared so that they contain from about 10 to about 80% by weight of active ingredient, from about 20 to
30 about 90% of a solid carrier, from about 0 to about 5% of a wetting agent, from about 3 to about 10% of a dispersing agent and, when necessary, from about 0 to about 80% of one or more stabilizers and/or other additives, such as penetrating agents,

adhesives, anti-caking agents, colorants, or the like. To obtain these wettable powders, the active ingredient is thoroughly mixed in a suitable blender with additional substances which may be impregnated on the porous filler and is ground using a mill or other suitable grinder. This produces wettable powders, the

5 wettability and the suspendability of which are advantageous. They may be suspended in water to give any desired concentration and this suspension can be employed very advantageously in particular for application to plant foliage.

The "water dispersible granules (WG)" (granules which are readily dispersible in water) have compositions which are substantially close to that of the wettable

10 powders. They may be prepared by granulation of formulations described for the wettable powders, either by a wet route (contacting finely divided active ingredient with the inert filler and a little water, e.g. 1 to 20% by weight, or with an aqueous solution of a dispersing agent or binder, followed by drying and screening), or by a dry route (compacting followed by grinding and screening).

15 The rates and concentrations of the formulated compositions may vary according to the method of application or the nature of the compositions or use thereof. Generally speaking, the compositions for application to control arthropod or helminth pests usually contain from about 0.00001% to about 95%, more particularly from about 0.0005% to about 50% by weight of one or more compounds of the invention, or of

20 total active ingredients (that is to say the compounds of the invention, together with other substances toxic to arthropods or helminths, synergists, trace elements or stabilizers). The actual compositions employed and their rate of application will be selected to achieve the desired effect(s) by the farmer, livestock producer, medical or veterinary practitioner, pest control operator or other person skilled in the art.

25 Solid or liquid compositions for application topically to animals, timber, stored products or household goods usually contain from about 0.00005% to about 90%, more particularly from about 0.001% to about 10%, by weight of one or more compounds of the invention. For administration to animals orally or parenterally, including percutaneously solid or liquid compositions, these normally contain from

30 about 0.1% to about 90% by weight of one or more compounds of the invention. Medicated feedstuffs normally contain from about 0.001% to about 3% by weight of one or more compounds of the invention. Concentrates or supplements for mixing

with feedstuffs normally contain from about 5% to about 90%, preferably from about 5% to about 50%, by weight of one or more compounds of the invention. Mineral salt licks normally contain from about 0.1% to about 10% by weight of one or more compounds of formula (I) or pesticidally acceptable salts thereof.

5 Dusts or liquid compositions for application to livestock, goods, premises or outdoor areas may contain from about 0.0001% to about 15%, more especially from about 0.005% to about 2.0%, by weight, of one or more compounds of the invention. Suitable concentrations in treated waters are between about 0.0001 ppm and about 20 ppm, more particularly about 0.001 ppm to about 5.0 ppm. of one or more

10 compounds of the invention, and may be used therapeutically in fish farming with appropriate exposure times. Edible baits may contain from about 0.01% to about 5%, preferably from about 0.01% to about 1.0%, by weight, of one or more compounds of the invention.

15 When administered to vertebrates parenterally, orally or by percutaneous or other means, the dosage of compounds of the invention, will depend upon the species, age, or health of the vertebrate and upon the nature and degree of its actual or potential infestation by arthropod or helminth pests. A single dose of about 0.1 to about 100 mg, preferably about 2.0 to about 20.0 mg, per kg body weight of the animal or doses of about 0.01 to about 20.0 mg, preferably about 0.1 to about 5.0

20 mg, per kg body weight of the animal per day, for sustained medication, are generally suitable by oral or parenteral administration. By use of sustained release formulations or devices, the daily doses required over a period of months may be combined and administered to animals on a single occasion.

25 The following composition EXAMPLES 2A - 2M illustrate compositions for use against arthropods, especially insects or acarids, or helminths such as plant nematodes, which comprise, as active ingredient, compounds of the invention, such as those described in preparative examples. The compositions described in EXAMPLES 2A - 2M can each be diluted to give a sprayable composition at concentrations suitable for use in the field. Generic chemical descriptions of the

30 ingredients (for which all of the following percentages are in weight percent), used in the composition EXAMPLES 2A - 2M exemplified below, are as follows:

Trade Name	Chemical Description
Ethyilan BCP	Nonylphenol ethylene oxide condensate
Soprophor BSU	Tristyrylphenol ethylene oxide condensate
Arylan CA	A 70% w/v solution of calcium dodecylbenzenesulfonate
5 Solvesso 150	Light C10 aromatic solvent
Arylan S	Sodium dodecylbenzenesulfonate
Darvan NO ₂	Sodium lignosulphonate
Celite PF	Synthetic magnesium silicate carrier
Sopropon T36	Sodium salts of polycarboxylic acids
10 Rhodigel 23	Polysaccharide xanthan gum
Bentone 38	Organic derivative of magnesium montmorillonite
Aerosil	Microfine silicon dioxide

EXAMPLE 2A

15 A water soluble concentrate is prepared with the composition as follows:

Active ingredient	7%
Ethyilan BCP	10%
N-methylpyrrolidone	83%

To a solution of Ethylan BCP dissolved in a portion of N-methylpyrrolidone is added the active ingredient with heating and stirring until dissolved. The resulting solution is made up to volume with the remainder of the solvent.

20 EXAMPLE 2B

An emulsifiable concentrate (EC) is prepared with the composition as follows:

Active ingredient	25%(max)
Soprophor BSU	10%
Arylan CA	5%
25 N-methylpyrrolidone	50%
Solvesso 150	10%

The first three components are dissolved in N-methylpyrrolidone and to this is then added the Solvesso 150 to give the final volume.

EXAMPLE 2C

A wettable powder (WP) is prepared with the composition as follows:

Active ingredient	40%
Arylan S	2%
Darvan NO ₂	5%
Celite PF	53%

The ingredients are mixed and ground in a hammer-mill to a powder with a particle
5 size of less than 50 microns.

EXAMPLE 2D

An aqueous-flowable formulation is prepared with the composition as follows:

Active ingredient	40.00%
Ethylan BCP	1.00%
Sopropon T360.	0.20%
Ethylene glycol	5.00%
Rhodigel 230.	0.15%
Water	53.65%

The ingredients are intimately mixed and are ground in a bead mill until a mean
10 particle size of less than 3 microns is obtained.

EXAMPLE 2E

An emulsifiable suspension concentrate is prepared with the composition as follows:

Active ingredient	30.0%
Ethylan BCP	10.0%
Bentone 38	0.5%
Solvesso 150	59.5%

The ingredients are intimately mixed and ground in a beadmill until a mean particle
15 size of less than 3 microns is obtained.

EXAMPLE 2F

A water dispersible granule is prepared with the composition as follows:

Active ingredient	30%
Darvan No 2	15%
Arylan S	8%
Celite PF	47%

The ingredients are mixed, micronized in a fluid-energy mill and then granulated in a
5 rotating pelletizer by spraying with water (up to 10%). The resulting granules are
dried in a fluid-bed drier to remove excess water.

EXAMPLE 2G

A dusting powder is prepared with the composition as follows:

Active ingredient	1 to 10%
Talc powder-superfine	99 to 90%

10 The ingredients are intimately mixed and further ground as necessary to achieve a
fine powder. This powder may be applied to a locus of arthropod infestation, for
example refuse dumps, stored products or household goods or animals infested by,
or at risk of infestation by, arthropods to control the arthropods by oral ingestion.
Suitable means for distributing the dusting powder to the locus of arthropod
15 infestation include mechanical blowers, handshakers or livestock self treatment
devices.

EXAMPLE 2H

An edible bait is prepared with the composition as follows:

Active ingredient	0.1 to 1.0%
Wheat flour	80%
Molasses	19.9 to 19%

20 The ingredients are intimately mixed and formed as required into a bait form. This
edible bait may be distributed at a locus, for example domestic or industrial
premises, e.g. kitchens, hospitals or stores, or outdoor areas, infested by arthropods,

for example ants, locusts, cockroaches or flies, to control the arthropods by oral ingestion.

EXAMPLE 2I

5 A solution formulation is prepared with a composition as follows:

Active ingredient	15%
Dimethyl sulfoxide	85%

The active ingredient is dissolved in dimethyl sulfoxide with mixing and or heating as required. This solution may be applied percutaneously as a pour-on application to domestic animals infested by arthropods or, after sterilization by filtration through a polytetrafluoroethylene membrane (0.22 micrometer pore size), by parenteral

10 injection, at a rate of application of from 1.2 to 12 ml of solution per 100 kg of animal body weight.

EXAMPLE 2J

A wettable powder is prepared with the composition as follows:

Active ingredient	50%
Ethylen BCP	5%
Aerosil	5%
Celite PF	40%

15 The Ethylan BCP is absorbed onto the Aerosil which is then mixed with the other ingredients and ground in a hammer-mill to give a wettable powder, which may be diluted with water to a concentration of from 0.001% to 2% by weight of the active compound and applied to a locus of infestation by arthropods, for example, dipterous larvae or plant nematodes, by spraying, or to domestic animals infested by, or at risk
20 of infection by arthropods, by spraying or dipping, or by oral administration in drinking water, to control the arthropods.

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EXAMPLE 2K

A slow release bolus composition is formed from granules containing the following components in varying percentages (similar to those described for the previous compositions) depending upon need:

Active ingredient
Density agent
Slow-release agent
Binder

5 The intimately mixed ingredients are formed into granules which are compressed into a bolus with a specific gravity of 2 or more. This can be administered orally to ruminant domestic animals for retention within the reticulo-rumen to give a continual slow release of active compound over an extended period of time to control infestation of the ruminant domestic animals by arthropods.

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EXAMPLE 2L

A slow release composition in the form of granules, pellets, briquettes or the like can be prepared with compositions as follows:

Active ingredient 0.5 to 25%
Polyvinyl chloride 75 to 99.5%
Diethyl phthalate (plasticizer)

The components are blended and then formed into suitable shapes by melt-extrusion
15 or molding. These compositions are useful, for example, for addition to standing water or for fabrication into collars or eartags for attachment to domestic animals to control pests by slow release.

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EXAMPLE 2M

A water dispersible granule is prepared with the composition as follows:

Active ingredient	85%(max)
Polyvinylpyrrolidone	5%
Attapulgite clay	6%
Sodium lauryl sulfate	2%
Glycerine	2%

The ingredients are mixed as a 45% slurry with water and wet milled to a particle size of 4 microns, then spray-dried to remove water.

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METHODS OF PESTICIDAL USE

The following representative test procedures, using compounds of the invention, were conducted to determine the parasiticidal and pesticidal activity of compounds of the invention.

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METHOD A:

Germinated field bean seeds (*Vicia faba*) with seed roots were transferred into brown glass bottles filled with tap water and then populated with about 100 black bean aphids (*Aphis fabae*). Plants and aphids were then dipped into an aqueous solution of the formulated preparation to be examined for 5 seconds. After they had drained, plants and animals were stored in a climatized chamber (16 hours of light/day, 25°C, 40-60% relative atmospheric humidity). After 3 and 6 days of storage, the effect of the preparation on the aphids was determined. At a concentration of 300 ppm (based on the content of active compound), the following Compounds of the Invention caused a mortality of 90-100% among the aphids:

A-86, A-91, A-101, A-196, B-86, B-87, B-91, B-201, B-246, B-286, B-455, B-456, B-464, B-529, B-536, E-129, E-130, E-135, E-137, E-138, E-143, E-185, E-325 and E-694.

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METHOD B:

Germinated field bean seeds (*Vicia faba*) with seed roots were transferred into brown glass bottles filled with tap water. Four milliliters of an aqueous solution of the formulated preparation to be examined were pipetted into the brown glass bottle.

- 5 The field bean was then heavily populated with about 100 black bean aphids (*Aphis fabae*). Plants and aphids were then stored in a climatized chamber (16 hours of light/day, 25°C, 40-60% relative atmospheric humidity). After 3 and 6 days of storage, the root-systemic effect of the preparation on the aphids was determined. At a concentration of 30 ppm (based on the content of active compound), the following
- 10 Compounds of the Invention caused a mortality of 90-100% among the aphids, by root-systemic action:
A-86, A-91, A-196, B-86, B-87, B-91, B-121, B-246, B-439, B-455, B-464, B-472, B-529, B-536, E-129, E-130, E-135, E-137, E-138, E-143, E-185, E-325 and E-694.